# SEVERE VOMITING DURING PREGNANCY

*BY THE SAME AUTHOR.*

THE

DIAGNOSIS AND TREATMENT

OF THE

DISEASES OF WOMEN.

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ON

# SEVERE VOMITING DURING PREGNANCY

*A COLLECTION AND ANALYSIS OF CASES*

*WITH REMARKS ON TREATMENT*

BY

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'It seems to me that an hypothesis is developed into a theory solely by explaining an ample lot of facts'

Darwin's *Life and Letters*, vol. ii. p. 286

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# PREFACE

The difficulty in explaining the occurrence of that severe form of Vomiting liable to be associated with Pregnancy has hitherto proved to be considerable. Yet the solution of the difficulty must be considered as one of great importance in view of the facts that:—(1) The malady is not seldom grievous in its effects, interfering with the proper nutrition of the body by cutting off the due supply of food, and giving rise to discomforts and disabilities of various kinds; (2) That it is, sometimes, even fatal to the patient; (3) That it occasionally renders it necessary to put an end to the life of the unborn child in order to save the life of the mother; (4) That this latter object is not always, even then, attained, the operation for destruction and removal of the child being by no means free from danger to the mother; (5) That even when the pregnancy is brought to an end, and the immediate effects of the operation recovered from, the patient is liable to fall a victim to disease, presumably engendered by the protracted starvation and feebleness, results of the long-continued vomiting.

The basis of the following Essay was a paper submitted by the Author two years ago to the American Gynecological Society. It contains a collection, mostly in abstract, of authenticated cases of severe vomiting during pregnancy which have been recorded by various authorities during the last twenty or five-and-twenty years, the object being to arrange the data and cases available in such a form as to facilitate sound deductions in reference to the nature and treatment of the affection. As regards the cases given in abstract, great care has been taken to offer an accurate and unprejudiced account of them. Cases in which the condition of the uterus was not observed or not described are, as a rule, omitted.

Certain conclusions regarding the nature and cause of severe vomiting during pregnancy seem to be deducible from analysis of the cases and observations here brought together. The Author ventures to express his belief that these conclusions are in agreement with the natural history of the affection as illustrated by recited cases, and that they will be found to be justified by the success of methods of treatment based upon them.

36 Berkeley Square,
*November* 1890.

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# SEVERE VOMITING DURING PREGNANCY

## *PRELIMINARY REMARKS ON THE ASSOCIATION OF PREGNANCY WITH NAUSEA AND VOMITING*

Pregnancy is commonly attended with more or less nausea, or nausea and vomiting. Hence these troublesome symptoms have come to be regarded as necessary accompaniments of utero-gestation. It is, on the other hand, undoubtedly the fact that pregnancy is not by any means always attended with sickness. So high an authority as Montgomery states that he has 'seen many instances in which females have been altogether exempt from this affection in several successive pregnancies, through which they have passed most favourably, and gave birth to strong and healthy children.' [1]

Such exceptional cases of healthy pregnancy without vomiting necessitate the conclusion that sickness is not a physiological or necessary accompaniment of pregnancy. A further deduction follows —that the sickness, when it does occur, is pathological in character, and that there must be between a woman who has a 'sick' pregnancy, and one who remains

[1] *Exposition of the Signs and Symptoms of Pregnancy*, p. 97.

free from sickness, though pregnant, some tangible and particular difference.

As most ordinarily observed, the nausea and vomiting occur during the first half of pregnancy, beginning during the first two or three weeks, and undergoing diminution or extinction as the uterus becomes an abdominal organ; which latter event usually takes place at about four months of gestation. The nausea and vomiting may, however, set in as early as the first day of pregnancy, and may be prolonged, in exceptional cases, during the whole of the pregnancy. There are some few cases, also, in which it has been observed for the first time during the middle or latter months.

Of 43 cases recorded by Guéniot—

In 9 the vomiting began in first weeks.
In 15 at end of 1st month.
In 9 at 1½ month.
In 5 at 2nd to 3rd months.
In 1 at 3rd to 4th months.
In 2 at 4th to 5th months.
In 2 at 6th to 7th months.

In 23 fatal cases the medium duration was three months. In 13 cures the medium duration was two months and a few days.[1]

The intensity of the sickness and vomiting varies excessively. It may be limited to what is termed 'morning' sickness, occurring only once or twice when the patient wakes up or rises from the bed, or on sitting down to breakfast, leaving her free during the rest of the day; or it may be very severe —so much so, that the taking of food is well-nigh,

[1] Guéniot, *Thèse de Paris*, 1863.

or sometimes even quite, impossible: after a few days the patient falls into a serious state of prostration and emaciation; repeated attacks of retching of a most painful character occur, even when no food is attempted to be given. The severity of the disease may be such that the patient dies of exhaustion and starvation, unless, naturally or artificially, the uterus is evacuated. The very severe and dangerous cases do not occur very frequently In the year 1852, however, Dubois, before the French Academy of Medicine, affirmed that in thirteen years he had seen 20 fatal cases.

It is stated by Anquetin (1865), that as early as 1813 Dr. Simmons, of London, induced premature labour as the only means of arresting the vomiting. In 1827, Dance described 2 fatal cases, giving an account of the condition of the uterus after death. Since that time the occasional occurrence of a dangerous form of vomiting during pregnancy has been widely recognised.

Between the slight and the severe cases of pregnancy-vomiting there are many degrees of intensity, but the only difference between the symptoms observed appears to be one of degree. Looking over the reports of cases, it is easy to recognise, from the identity of symptoms, presence of one disease; so that the conclusion is inevitably suggested, that the disease is the same alike in the severe and in the less severe cases of pregnancy-vomiting. Hence, as has been some years ago stated by Anquetin, any theory offered as an explanation of the severe cases must be capable of accounting for the phenomena observed both in the slight and in the severe cases of vomiting.

A remarkable feature in reference to the severe vomiting of pregnancy is the rapidity with which, in some cases, the vomiting ceases, without apparent sufficient cause. This had led in some instances to a fatal trust in the resources of Nature. The rapid natural cure is more liable to occur as the patient approaches mid-pregnancy.

The fatal results of severe vomiting in pregnancy are evidently due to starvation: the patient is not only deprived of food, owing to its immediate return from the stomach after being swallowed, but there is a very rapid emaciation, showing that there is a continuous positive loss of the substance of the tissues, affecting the whole frame. The amount of vomited fluid is often very great. Sometimes there is diarrhœa, and this adds to the amount of loss. The bodily powers are terribly diminished in the worst cases, which is shown by the fact that death may occur, vomiting continuing up to the end. Death may also occur later on, when the vomiting has been actually cured, in consequence of the severity of the prostration produced by the long-continued vomiting.

Various explanations have been given of the occurrence of vomiting in pregnancy. These differences of opinion on the subject are represented by the different terms made use of in describing and classifying the affection. Thus, we have the 'simple,' or 'slight,' or 'physiological,' or 'morning' sickness; the 'severe,' the 'uncontrollable,' the 'pernicious.' These terms imply different theories as to the nature of this affection.

Cases of vomiting during pregnancy are properly classified in two divisions:—

1. Those in which the vomiting is due to some

disease or condition quite distinct from the pregnancy. The vomiting which occurs under these circumstances is independent of the pregnancy, although it is possible that it may be intensified by it: Vomiting *in* pregnancy.

2. Those in which the vomiting is produced by, or dependent directly upon, the pregnancy: Vomiting *of* pregnancy.

Anquetin—in whose very valuable essay are collected a certain number of cases, to be presently mentioned, in which the sickness occurring during pregnancy was found to be associated with lesions of various organs of the body other than the uterus—McClintock, and, more recently, Matthews Duncan, emphasise the necessity for separating cases into two categories, according as the pregnancy is responsible or not for the production of the sickness.

## I

### *VOMITING IN PREGNANCY—ENUMERATION OF CASES*

The series of cases now to be enumerated consists of those in which some lesion has been found on post-mortem examination, considered by the reporter of the case sufficient to account for the vomiting, without necessity for recourse to the idea that the vomiting was due solely to the pregnancy.

The following table, which is, probably, not exhaustive, contains 24 cases in which, on pathological or other evidence, it may be concluded that the vomiting was not actually due to pregnancy *per se*.[1]

Concerning these, it is to be remarked that the evidence is not conclusive in all of them that the lesions mentioned — chronic gastritis (1 case), redness and softening of the stomach (1), injection of gastric mucous membrane (? 3), and some others in the list—can be accepted as responsible for the fatal event. It may be suggested that, so far as gastric changes are concerned, probably the gastric lesions may have been more an effect of the vomiting than a cause thereof. I have seen cases of vomiting in which there was no pregnancy, but in which the

[1] As regards the numbering of the cases included in this Essay, I have found it convenient to number the whole of them consecutively. The grouping of the cases here adopted, although as natural as I could make it, is necessarily arbitrary. The numbering within each separate group is for the most part chronological.

vomiting was unquestionably uterine, in which the continued vomiting occasionally gave rise to hematemesis, which was apparently a mechanical result of the frequent straining, and in which, probably, the stomach would, on a post-mortem examination, have exhibited injection of the lining mucous membrane.

*GROUP OF CASES A.—SEVERE VOMITING IN PREGNANCY. FATAL CASES. AUTOPSY. LESIONS, NON-UTERINE, DISCOVERED.*

| No. | Author | Lesion : State of Uterus not mentioned |
|---|---|---|
| 1 | Valleix; from Anquetin, 'Des vomissements incoërcibles pendant la grossesse,' *Rev. Méd.*, 1865 | Chronic gastritis |
| 2 | Taurin; *ibid.* . . . . | Redness and softening of stomach |
| 3 | Dubois; *ibid.* | Redness and softening of stomach |
| 4 | Chomel; *ibid.* | |
| 5 | Sandras; *ibid.* | |
| 6 | Depaul; *ibid.* . . . . | Cancer of pylorus |
| 7 | Pipelet; *ibid.* . . . . | Epigastric hernia |
| 8 | Lancereaux; *ibid.* . . . | Atrophy of muscles, &c. |
| 9 | Trousseau; *ibid.* . . . | Scirrhous induration near pylorus |
| 10 | Schutbach; *ibid.* . . . | Tumour near pylorus, ulcerated |
| 11 | Schilachigla; *ibid.* . . . | Tubercle of lung |
| 12 | Rayer and Depaul; *ibid.* . . | Tubercle of brain |
| 13 | Sandras; *ibid.* . . . . | Alteration of mesenteric glands |
| 14 | Blot; *ibid.* . . . . | Alteration of glands of epigastrium |
| 15 | Chomel; *ibid.* . . . . | Fatty degeneration of liver |
| 16 | Taurin; *ibid.* . . . . | Biliary calculi |
| 17 | Lobstein; *ibid.* . . . . | Redness of semilunar ganglia of solar plexus |
| 18 | Sandras; *ibid.* . . . . | Congestion of meninges |
| 19 | Burns; *ibid.* . . . . | Impaction of biliary calculus |
| 20 | Harrinson; Letter to Author . | Disease of adrenals |
| 21 | Matthews Duncan; 'Lectures on Diseases of Women' . . | 'Icterus gravis' |
| 22 | Horrocks; *Brit. Med. Jour.*, July 4, 1885 | Primary encephaloid carcinoma of liver |
| 23 | Horwitz; *Ztschr. f. Geb. & Gyn.*, 1883 (see p. 12) | Polypoid disease of the intestines |
| 24 | Jaggard; *Am. Gyn. Trans.* 14, p. 457 . . . . | Gastro-enteritis |

There are instances in this table of the presence of cancer at the pylorus or its neighbourhod, tubercle

of the brain, fatty degeneration of liver, impaction of biliary calculus, &c., in which the vomiting was probably rightly explained by the presence of the lesions mentioned.

Most of the cases collected under the above category are taken from the treatise by Anquetin; a few additional cases I have collected. Among the additional cases is one by Dr. Matthews Duncan, in which the patient's disease is described as 'icterus gravis.' This case is the more important, as it has been made by that eminent authority the basis of a generalisation on the vomiting of pregnancy which requires particular examination and discussion.

Dr. Matthews Duncan describes the vomiting of pregnancy as consisting of at least two kinds:—

1. The common kind, almost certainly the result of morbid innervation, whether it is a reflected sensation or a reflected motion, or the result of reflected secretion. It is frequently very grievous, perhaps sometimes even fatal. It is arrested when the fœtus dies, or by abortion, or delivery at full time. No grave disorder, but deficient nutrition.

2. The pernicious vomiting, concerning which our knowledge is extremely imperfect; of this disease Dr. Matthews Duncan gives a case.

*Case* 21. MATTHEWS DUNCAN, *Lectures on Diseases of Women*, 3rd ed., p. 295.

The patient, aged 34 years, was pregnant for the second time. The first pregnancy ended in a miscarriage after the second month, at which time she had jaundice. Present illness began five weeks before admission; symptoms, vomiting and headache. Severe vomiting and jaundice now present. Jaundice general, but slight; has had wandering delirium. Bile in urine; albumen one-fifth; casts. Hic-

cough; wandering, dreamy state. Twenty-one days after admission tangle-tent introduced; left sixteen hours. Next day a second tangle-tent, with sponge to retain it, was introduced; ergot given. Died that day. Liver, 2lb. 2oz.; small, soft, partly green surface; colour on section, brown; no lobules seen; emphysematous. Kidneys flabby, congested. Decomposed fœtus of six weeks in utero. Held to be three months pregnant.

Dr. Matthews Duncan considers this a case of icterus gravis, formerly called yellow atrophy of liver. He states that physiologists have recently discovered that in healthy pregnancy the earliest stage of this disease occurs. The great glands of the body, especially the liver, undergo in healthy pregnancy and in healthy suckling a certain degree of parenchymatous degeneration. This is the first stage of the grave disease mentioned. The grand indications of icterus gravis are peculiar convulsions, jaundice, and hemorrhage. Vomiting is not always present, nor even sickness, though both are generally well-marked.

Together with Dr. Matthews Duncan's case may be mentioned the following :—

*Case* 25. Roughton, *Lancet*, Sept. 5, 1885.

A young woman, aged 20 years, had severe pregnancy-vomiting, also slight jaundice. Two days after admission, attack of shouting and throwing about of arms, more like a hysterical attack than epileptic fit. Attack recurred thrice, followed by semi-delirious state. Abortion induced next day. Result favourable.

It is stated that the uterus was normal. The author argues, on the same ground as that taken up by Dr. Matthews Duncan, that in normal pregnancy

'it has recently been shown' that the great glands undergo cloudy marking almost identical with the first stage of Bright's disease and of acute yellow atrophy of the liver. According as this change proceeds further in the kidneys or the liver, we get eclampsia or the pernicious vomiting of pregnancy. In Dr. Roughton's case, as the patient recovered, there was no post-mortem examination, and, consequently, no verification of the diagnosis.

Here it should be mentioned that, in a very interesting article recently published, Lomer[1] discusses the subject of icterus gravidarum and acute yellow-liver atrophy. As to the relation the acute yellow-liver atrophy bears to icterus gravidarum, there are, according to Lomer, three opinions:—
1. That it is the result of a general infection.
2. That it is an essential primary liver affection.
3. That the disease is developed out of icterus, and that it is strikingly like phosphorus-poisoning. Thierfelder found that, out of 143 cases of acute yellow atrophy of the liver, 30 were pregnant women. Regarding the absolute frequency of the conditions, Spaeth found it once in 16,502 pregnant women. He found icterus only three times in 14,061 pregnant women. Kerksig, in 1704, describes an epidemic of icterus affecting 70 patients, of whom 5 were pregnant; 3 aborted, and 2 died. Carpentier saw an epidemic, at Roubaix, which was only dangerous to pregnant women. Bardinet mentions an epidemic at Limoges which included 13 pregnant women, of whom 3 died with delirium and coma. The disease affected others also, but in the case of

[1] 'Ueber die Bedeutung des Icterus Gravidarum für Mutter und Kind.' *Zeitschr. Geb. u. Gyn.*, xiii. Bd. I Heft, S. 169.

pregnant women it had an exceptional severity. Lomer states that the most striking symptom in this epidemic was a catarrhal icterus, often fatal in pregnant women. Frerichs believes icterus to be the beginning of acute yellow-liver atrophy. Lomer states that there must be something more than mere bile-retention to give rise to the severe results observed in pregnant women. He suggests that the explanation is probably to be sought in the altered relation of the nutrition-changes in pregnancy, and that there is an unusual susceptibility to poisonous influences in pregnant women. The biliary acids passing into the blood act in the pregnant woman differently, and thus the result is accounted for. The biliary acids are, Lomer states, capable, like phosphorus, of producing disintegration of the blood-corpuscles.

It is evident that the disease spoken of by Lomer is one of a very distinct character, affecting men as well as women, but proving unusually fatal to women in the state of pregnancy.

With reference to the presence of vomiting in cases of icterus with acute yellow atrophy of the liver, repeated vomiting at an early period is, according to Frerichs, usually observed. The period of frequency at which the disease most usually commences is, Frerichs states, from the third to the sixth month: sometimes it is the seventh.

Icterus gravis, as described by Dr. Duncan, is a rare condition, in which, as stated in his work, vomiting is not even always present, essentially different from cases where severe vomiting is observed, and there seem to be no grounds for the adoption of the generalisation offered by Dr. Matthews Duncan for

acceptance, viz., that the ordinary severe sickness of pregnancy has for its foundation a mild form of that disease known as icterus gravis.

*Case* 23. Horwitz, *Zeitsch. f. Geb. and Gyn.* 1883. (Case 5 of his series).

Æt. 29. Has had five natural labours. Vomiting set in soon after quickening, and soon became severe (perniciosus), accompanied with diarrhœa. In right hypochondrium is a tumour, ·06 × ·02—·03, slightly movable, hard, not sensitive. Body of uterus to the left side, and of a size corresponding to eight months' gestation. Labour set in two days after admission into hospital, child born alive. Death three days after from exhaustion, with symptoms of puerperal fever.

*Post mortem.*—The stomach was found thickened, two tumours the size of walnuts at the cardiac end; the large intestine presented a number of pediculated, two or three inch long polypi of greyish colour, size of a walnut or pigeon's egg, especially large in the descending colon and sigmoid flexure. Mucous membrane of small intestine much hypertrophied.

*Case* 24. Jaggard, *Am. Gyn. Tr.* 14. p. 457.

Primipara 31. Pernicious vomiting developed during second half of pregnancy. Spontaneous abortion at sixth month; recovery. Probable adjuvant cause of vomiting gastro-enteritis.

When five months' pregnant, attack of acute gastro-enteritis from taking a quart of cold milk after a fast of twenty-four hours and when greatly fatigued after a long walk. Became very ill, and uncontrollable vomiting set in. No vomiting previously. Natural abortion at six months. One feature in the case was presence of jaundice, which was, the author believes, the result of duodenitis, and was an example of simple catarrhal icterus.

The following are cases of emotion or shock causing uncontrollable vomiting in pregnancy not

mentioned in Table A. as they come under a rather different category, and there was no post-mortem examination :—

*Case* 26. BARNES, *Obstetric Medicine and Surgery*. By R. Barnes and Fancourt Barnes. London, 1884, p. 364.

Barnes gives the following cases of uncontrollable vomiting brought about by *emotion*:—One, a lady who, pregnant for the fifth time, underwent at one month of pregnancy severe family trials, came home exhausted, was attacked with unremitting vomiting, and died in a few days. He has seen other cases induced by severe mental shock also ending fatally, spite of induction of abortion.

*Case* 27. BARNES, *loc. cit.*

In another case incoercible vomiting set in at between two and three months: her husband committed murder and suicide, and she further found herself syphilised. She implored that abortion might be induced; this was not done, and the patient died in a week exhausted.

Further examples of the influence of what may be termed a general cause for the vomiting mentioned by Dr. Barnes are *intercurrent disease*, *whooping-cough*, and *alcoholism*, which he has known to produce severe vomiting in pregnancy. Dr. Barnes also mentions *albuminuria*, first noted as observed in such cases by Sir J. Simpson. As regards albuminuria, it seems probable, however, that it is rather an effect than a cause of the disease, though Bright's disease in a pregnant woman might conceivably produce or intensify vomiting to a severe extent. Horwitz, of St. Petersburg, whose essay on the uncontrollable vomiting of pregnancy I shall allude to presently, considers that albuminuria may be the result of the starvation which is present in the severe cases. He

mentions the observations of Manassein—who found that in animals suffering from hunger albumen was always found in the urine—as bearing on this question; but there appear to be conflicting statements as to whether albumen is or is not constantly observed in cases of obstinate vomiting during pregnancy.

Mayo Robson (*Brit. Med. Journ.*, 1889) gives a case of strangulated hernia during pregnancy which caused severe vomiting, such as might have been mistaken for vomiting due to the pregnancy.

## II

### *VOMITING DUE TO PREGNANCY (OF PREGNANCY)—ENUMERATION OF CASES*

We have next to consider those cases in which the vomiting arises, presumably at least, in consequence of pregnancy, and in which there is vomiting *of* pregnancy.

In his valuable essay on uncontrollable vomiting during pregnancy, published in 1865, Anquetin, who was deeply impressed with the importance of alterations of the uterus as causes of the vomiting, speaking of the cases where lesions of the uterus were found, says: 'it is impossible these lesions were produced by the vomiting; it is evident they may produce vomiting when associated with pregnancy. We know that certain functional processes, as menstruation and coitus, may produce vomiting, hence we ought not to be surprised that everything which modifies the sensibility of the uterus may produce the same effect, especially during pregnancy, when the over-excitation of the uterine system is already a sufficient cause of vomiting. A concluding reason for recognising the lesion of the uterus as a cause of the obstinate vomiting of pregnancy is that in every case where such lesions have been known to exist during life and where it has been possible to remove them, the vomiting has at once ceased.'[1]

[1] Anquetin, *Rev. Méd.* 1865, 'Des vomissements incoërcibles pendant la grossesse.'

The cases which I now propose to set forth are cases of severe and decided pregnancy-vomiting, in which the condition of the uterus was more or less fully observed and described, my object being to present materials available for determination of the question as to the influence exercised by abnormal conditions of the uterus in causing the vomiting.

The evidence of the influence of the varying conditions of the uterus in giving rise to vomiting of the severe kind during pregnancy has been slowly accumulating. Marked and intense forms of the affection do not present themselves very frequently, but the body of evidence now producible is considerable.

I proceed now to give an account of *cases of severe vomiting in pregnancy, in the large majority of which important particulars as to the condition of the uterus were recorded, including ante- or retro-displacements, induration, thickening or contraction of cervix uteri, inflammatory effusions in the vicinity of the uterus, &c.*

The order in which the cases are related is mainly chronological. (1) Group B, those in which the uterus was described as retroverted or flexed, and which form almost naturally a class by themselves; (2) Group C, those in which the uterus was anteverted or anteflexed, or in which no mention being made of the position or shape of the uterus it may be assumed that the uterus was at all events not retroverted or retroflexed. (3) Group D, contains a few cases in which lesions of a more decidedly inflammatory character were recorded. (4) Group E, miscellaneous cases. In some cases which are included the infor-

mation as to the state of the uterus is entirely wanting or inadequate, but as the uterus was treated in order to relieve the sickness, they offer evidence of a kind useful in discussing the question as to the influence of the uterus in causing the vomiting.

*GROUP B. CASES OF SEVERE VOMITING OF PREGNANCY, ASSOCIATED WITH RETROVERSION OR RETROFLEXION OF THE GRAVID UTERUS, ENUMERATED*

| Case | Observer | Condition of Uterus | Treatment | Result |
|---|---|---|---|---|
| 28 | Stoltz | Incarceration : movable | Vomiting several times suspended on reduction. Uterus could not be kept in position | Artificial abortion, recovered |
| 29 | Moreau and Briau | Incomplete retroversion : incarceration in bony pelvis | Mechanical elevation of uterus | Cure |
| 30 | Copeman | Uterus retroverted | Mechanical reduction | Cure |
| 31 | Graily Hewitt | Uterus retroflexed, movable | Relief of sickness by Hodge pessary. Recurrence on slipping of pessary twice | Abortion at six months |
| 32 | Graily Hewitt | Uterus much retroflexed | Treated by prone position, rest, &c. | Cure |
| 33 | Godson | Retroversion and flexion easily tilted into position but falling back immediately | Treatment by Hodge pessary | Cure |
| 34 | Halliday Croom | Gravid retroflexion | Treatment not stated | Result not stated |
| 35 | Upshur | Retroversion | Treatment by Hodge pessary | Relief |
| 36 | H. F. Campbell | Extreme gravid retroversion | Frequent genu-pectoral position and manipulation | Cure |
| 37 | ,, | Gravid retroversion | Genu-pectoral position and Barnes's bag | Cure |
| 38 | ,, | Extreme retroversion firmly packed in hollow of sacrum | Reduction by manipulation | Cure |
| 39 | ,, | Gravid retroversion | Genu-pectoral position and abdominal succussion, pessary | Cure |
| 40 | Boardman | — | Mechanical elevation and use of pessary | Spontaneous premature labour at seven months |

| Case | Observer | Condition of Uterus | Treatment | Result |
|---|---|---|---|---|
| 41 | Boardman | Uterus retroverted. Three previous pregnancies severe sickness — next pregnancy no sickness when pessary used | Treated preventively by pessary | Successful. Full term |
| 42 | Storker | Gravid retroversion | Treated by artificial abortion | Recovery |
| 43 | „ Same patient succeeding pregnancy | Gravid retroversion | Dilatation and artificial abortion | Recovery |
| 44 | Chazan | Retroflexed gravid uterus | Reduction and use of pessary | Cure |
| 45 | Greslou | Retroversion, resistant to reduction | Manipulation not successful | Artificial abortion. Cure |
| 46 | Pugliatti | Retroflexed gravid uterus | Uterus replaced, sickness continued, use of tampons and sound | Cure |

*Case* 28. Stoltz, *Gaz. Méd.* Juin 1852.

Patient æt. 19. Primipara. Vomiting set in early, pregnancy not at first suspected; os directed upwards, near symphysis, but could be brought down readily. Uterus retroverted but movable; the organ had been several times replaced by finger, and each time sickness had been relieved, but the uterus could not be maintained in its proper position. Vagina narrow. Abortion decided on as only means to save patient's life. Abortion produced by catheter retained *in utero*. Result good. Next pregnancy natural.

*Case* 29. Moreau and Briau, *Gaz. Hebdom*, Jul. 1856.

Patient æt. 25, had been thrown from carriage after last confinement; leucorrhœa consequent. Sickness set in end of second month of third pregnancy, sickness intense, thirst, emaciation increasing. Briau called in Prof. Moreau, who found uterus incarcerated in pelvis in a partly retroverted state. The uterus was replaced by a skilful manœuvre, and

patient rescued from impending death. Moreau stated that he had similarly treated other like cases.

*Case* 30. COPEMAN. (*Reference lost.*)

Patient had for a year suffered from menorrhagia, probably due to cervical polypi. Became pregnant, during early part severe vomiting, pain in back and pelvis, accompanied with bearing-down sensations. A retroversion of the gravid uterus was discovered and rectified, and the sickness entirely ceased (attended in March 1865).

*Case* 31. GRAILY HEWITT, *Dis. of Women*, 4th ed. p. 365.

Mrs. G., æt. 26, wife of medical man. Treated by G. Hewitt previously for retroflexion of uterus; became pregnant for fourth time, and at six weeks was suffering from severe sickness. Uterus found to be gravid and retroflexed. A Hodge pessary employed to reduce and keep uterus in place. Relief of sickness thereon. A month later recurrence of sickness with jaundice and great general depression. Pessary was found to have slipped. Readjustment followed by speedy relief. A month later a second recurrence of most intense vomiting which was found to have a like cause. Great difficulty was experienced in maintaining readjustment owing to the restlessness of the patient. Abortion set in when just over six months advanced in pregnancy.

*Case* 32. GRAILY HEWITT, *Dis. of Women*, 4th ed. p. 368.

In 1873 I saw a patient of Mr. Lionel Powell, of Melton Mowbray, æt. 28, who was in the third month of her fourth pregnancy and suffering from severe sickness. I found the uterus much retroflexed, but not impacted in the pelvis. The uterus became reduced on keeping the patient in the prone position, and the sickness shortly ceased. Delivery at term.

*Case* 33. GODSON. (*Letter to author.*)

'I met with an obstinate case of vomiting just lately at St. Bartholomew's, at two and a half months, in which the

uterus was retroverted and flexed, but easily tilted into position, falling back again immediately, however. I inserted a Hodge, remarking to my class that it was a good test case for your theory of the causation of the vomiting of pregnancy. The patient was never sick afterwards. I thought you would like to know this.'

CLEMENT GODSON.

March 5, 1885.

*Case* 34. HALLIDAY CROOM. (*Letter to author.*)

'Curiously, all the years I have been in obstetric practice, I have never seen a case of uncontrollable vomiting, except one, and that was one I saw in consultation, and turned out to be gravid retroflexion at three and a half months.

J. HALLIDAY CROOM.

Edinburgh: May 23, 1885.'

*Case* 35. JOHN C. UPSHUR. *American Journal of Obstetrics*, 1884, p. 915.

Patient aged 24, primipara, vomiting began seventh week, ended tenth week. Internal remedies failed. Retroversion discovered in tenth week. Relieved by Hodge's double lever closed pessary. Previous to insertion of pessary, condition became steadily worse, patient more prostrated and disgust for food increasing daily.

*Case* 36. HENRY F. CAMPBELL, Augusta, Georgia. *Amer. Gynec. Trans.*, 1885.

Patient aged 40 years. Nausea, inability to take food, occasional vomiting, and most distressing salivation. In bed six weeks; bearing-down pains, irritation of bladder about fourth month. The uterus found in a state of extreme gravid retroversion. Treatment consisted in frequent genu-pectoral positions. This failing, patient was placed in this position, and after elevating perineum to allow air to enter vagina, the cervix was pressed backward by finger. Reposition at once effected. Immediate cessation of nausea and salivation. Delivery at term.

*Case* 37. H. F. Campbell, Augusta, Georgia. *Amer. Gynec. Trans.*, 1885.

Gravid retroversion, fourth month, vomiting frequent, nausea incessant. Treatment, use of genu-pectoral position combined with use of large size Barnes's bag placed in rectum. Reduction. Cure.

*Case* 38. H. F. Campbell, *loc. cit.*

Primipara, third month, nausea extreme from time of conception. Morphia only gave partial relief. Uterus in state of extreme retroversion and firmly packed in hollow of sacrum, and somewhat tender. Patient had had a tent just introduced to induce abortion. This was withdrawn, the genu-pectoral position used, and uterus 'jostled' out of the hollow of the sacrum. Nausea ceased; no abortion occurred. Delivery full term.

*Case* 39. H. F. Campbell, *loc. cit.*

Gravid retroversion, fundus tender; aged 25 years; in third month. Nausea and vomiting in extreme degree, great distress, emaciation. Patient in despairing state. Genu-pectoral position and moderate abdominal succussion at once gave relief, uterus becoming replaced. Pessary applied. Cure. Delivery full term.

Dr. Boardman (Boston, United States), discussing Dr. Kingman's case, cites three cases, in two of which the vomiting was severe.

*Case* 40. Boardman, *Boston Med. and Surg. Journ.*, Feb. 7, 1889.

In a fifth pregnancy at five months emaciation, sallow, feeble, from excessive vomiting; called to decide on inducing miscarriage. Uterus found prolapsed, movable. In genu-pectoral position he raised uterus and inserted a large Thomas's retroversion pessary which held uterus. One hour later patient vomited once, never afterwards. Spontaneous premature labour at end of seven months.

*Case* 41. BOARDMAN, *loc. cit.*

Had early abortion, uterus found retroverted and prolapsed. No treatment allowed. Next year another abortion, treated for retroversion, said to be cured, but third pregnancy followed by abortion. In all three pregnancies severe nausea and vomiting. Dr. Boardman saw her afterwards and found uterus retroverted and prolapsed. Uterus replaced and pessary fitted. Shortly after, fourth pregnancy; no vomiting, went full time. Pessary removed after fourth month.

*Cases* 42 and 43 (same patient). STORKER (Lucerne), *Centralbl. f. Gynäc.* No. 16, 1889.

Artificial induced labour for uncontrollable vomiting of pregnancy three times in same patient.

Mrs. —— in youth suffered frequently from vomiting and diarrhœa two or three days at a time, but not after age of 20. Married at 21; husband died one year after. Married again at 29. In 9 months gravid. At fifth week vomiting set in, became severe. From ninth week always in bed. Nutritive enemata. In fourteenth week abortion decided on; after some days succeeded in inserting laminaria tent which remained 14 hours. Abortion relieved patient. A second pregnancy occurred 9 months later. Similar course, similar treatment. Result good. Third pregnancy occurred January 1886, about 1½ years later. Patient weighed at that time 168 pounds. At beginning of March weighed 145 pounds, sickness severe, could only take water.

Copeman's plan tried, no result, next injection of water inside uterus, great resistance to passage of internal os by catheter. No result for three days, laminaria then used. When os internum was dilated vomiting ceased. Contents of uterus removed by hand. No albuminuria or evidence of visceral disease.

In reply to a letter which I addressed to Dr. Storker, he kindly writes (Lucerne, October 24, 1889) particulars as to the state of the uterus: 'In

the two last pregnancies in which I saw the patient, the normally large, normally shaped uterus lay in very pronounced retroversion; no flexion! Three years after the last pregnancy I found the uterus in perfectly normal position and size and mobility. In the interval I never saw the patient.'

[It is stated that when the os was dilated by the tent employed to induce labour, the sickness ceased. It seems possible that the pregnancy might have proceeded without necessity for removal of ovum.—G. H.]

*Case* 44. CHAZAN. *Centralb. für Gynäk.* No. 2, 1887 (*quoted by Pugliatti*).

A lady in her second pregnancy was attacked with incoercible vomiting in the third month. This was attributed to retroflexion of the uterus, and the vomiting ceased at once on replacing the uterus and application of a ring-pessary.

*Case* 45. GRESLOU. *Annales de Gynécol.* t. xxviii. p. 212 (*quoted by Pugliatti*), p. 436.

Patient affected with marked retroversion. Efforts made to replace the uterus were not successful in relieving patient, and in the fourth month artificial abortion was induced. The vomiting ceased five days, but then reappeared and the retroversion was reproduced. A Hodge pessary was applied, the vomiting became at once less and soon ceased.

*Case* 46. PUGLIATTI, p. 493 (his sixth case). 'Essay on etiology and therapeutics of the incoercible vomiting of pregnancy,' *Il Morgagni*, Jul. and Aug. 1889.

L. C. 2-para, æt. 27, suffering when six weeks pregnant from sickness sufficiently severe to require medical help. Uterus found in a state of retroflexion, the depressed fundus rising on application of pressure by fingers in rectum and use of genu-pectoral position. Tampons of 'glycerine' in

vagina. How long tampons remained is not stated. The vomiting did not undergo any modification. Four days later uterus found in proper position. Mucus observed at os. By means of cotton placed on a sound the interior of the cervix was cleansed of mucus; this was twice repeated. Vomiting gradually ceased.

*GROUP C. SEVERE VOMITING OF PREGNANCY ALL CASES), IN A STATE*

| | Author | Position of Uterus; Impaction or Detention of Uterus in Pelvis | Treatment by Elevation of Body of Uterus |
|---|---|---|---|
| 47 | Stoltz | Anteflexion with impaction | One elevation which gave relief |
| 48 | Ulrich | Anteflexion with impaction | Irreducible |
| 49 | Tyler Smith | Ante-position? Impaction | |
| 50 | Bennet | Context indicates anteflexion or version | — |
| 51 | G. Hewitt | Anteflexion with detention | — |
| 52 | Munro | Anteflexion with irreducible impaction | Presumably attempts at reduction |
| 53 | McClintock | Anteflexion | — |
| 54 | G. Hewitt | Anteflexion with detention | — |
| 55 | Copeman | Ante-position: six months pregnant | — |
| 56 | Copeman | Anteversion: two months pregnant | — |
| 57 | Copeman | Eight months pregnant | — |
| 58 | Copeman | Extreme anteversion with detention: five months pregnant | Mechanical elevation |
| 59 | Copeman | Anteversion with detention | Mechanical elevation |
| 60 | Copeman | Ante-position | — |
| 61 | Copeman | No information | — |
| 62 | Atkinson | No information | — |
| 63 | Minot | No information | — |
| 64 | Dukes | No information | — |
| 65 | Gooch | No information | — |
| 66 | Rosenthal | No information | — |
| 67 | Rosenthal | No information | — |
| 68 | Fry | No information | — |
| 69 | Murillo | No information | — |
| 70 | G. Hewitt | Oblique anteversion; impacted | — |
| 71 | G. Hewitt | Anteflexion previously | — |
| 72 | G. Hewitt | Anteflexion, swollen | — |
| 73 | G. Hewitt | Anteflexion with impaction | — |
| 74 | Marion Sims | Granular os | — |
| 75 | Haddon | Congestion of os | — |
| 76 | Jones (Chicago) | No information | — |
| 77 | Horwitz | Anteflexion with impaction | Vaginal tampons |

*IN CASES WHERE UTERUS WAS (PROBABLY IN OF ANTE-POSITION.*

| Treatment by Rest and Adjuvants | Contraction or Rigidity of Cervix | Treatment by Copeman's Procedure | Artificial or Natural Abortion | Cure of Sickness | Death |
|---|---|---|---|---|---|
| — | — | — | — | Temporary cure | Death from untreated recurrence |
| — | — | — | — | — | Death |
| Rest, &c. | — | — | Natural abortion | Relief | Death later ; rapid phthisis |
| Caustics, Rest, &c. | — | — | — | Cure | — |
| Rest, &c. | — | — | — | Cure | — |
| — | — | — | Artificial abortion | Cure | — |
| — | — | — | Artificial abortion | Cure | — |
| Rest, &c. | — | — | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | ? | — | — | Cure | — |
| — | ? | One slight dilatation | — | Cure | — |
| — | Rigidity | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | Hard | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| — | Gristly | Dilatation | — | Cure | — |
| — | ? | Dilatation | — | Cure | — |
| Rest, &c. | — | — | — | — | — |
| — | Great rigidity | Dilatation | Abortion | Cure Relief | — Death later |
| — | — | — | — | Result not known | — |
| Rest, &c. | — | — | — | Cure | — |
| Caustics | — | — | — | Cure | — |
| Caustics | — | — | — | Cure in three cases | — |
| Caustics | — | — | — | Cure in five cases | — |
| — | Thick | — | Natural abortion | Cure | — |

*GROUP C*

| | Author | Position of Uterus; Impaction or Detention of Uterus in Pelvis | Treatment by Elevation of Body of Uterus |
|---|---|---|---|
| 78 | Horwitz | Anteflexion with irreducible impaction | Irreducible |
| 79 | Horwitz | Anteflexion: irreducible impaction | Irreducible |
| 80 | Horwitz | Anteflexion: impaction | ? |
| 81 | Horwitz | Anteflexion | ? |
| 82 | Horwitz | Anteflexion: impaction | ? |
| 83 | Horwitz | Anteflexion: impaction | Attempt to redress gives much pain |
| 84 | Haslett | Anteflexion: irreducible impaction | — |
| 85 | Davis | Anteflexion: impaction | Elevation and use of pessary |
| 86 | Campbell | Anteflexion: incarceration | Mechanical elevation |
| 87 | G. Hewitt | Anteflexion: incarceration | Mechanical elevation |
| 88 | Doe | Anteflexion: incarceration | Reduction easy, but could only be sustained by tampons |
| 89 | Clark | Anteflexion | — |
| 90 | Veatch | Anteflexion: incarceration | Patient refused to allow elevation |
| 91 | de Voe | Anteflexion: detention | Mechanical elevation |
| 92 | W. Duncan | Anteflexion | — |
| 93 | W. Duncan | Anteflexion | — |
| 94 | Stedman | Anteflexion | — |
| 95 | T. C. Smith | Anteflexion | — |
| 96 | Meredith | Anteflexion | — |
| 97 | Kingman | Anteflexion: incarceration | Mechanical elevation, &c. |
| 98 | Guéniot | Anteflexion: impaction | Mechanical elevation |
| 99 | Pugliatti | Anteversion marked | Vaginal tampons |
| 100 | G. Hewitt | Anteflexion: incarceration | Elevation: mechanical, by finger and air-ball worn some time |
| 101 | Jaggard | Anteflexion mobile | — |

—(*continued.*)

| Treatment by Rest and Adjuvants | Contraction or Rigidity of Cervix | Treatment by Copeman's Procedure | Artificial or Natural Abortion | Cure of Sickness | Death |
|---|---|---|---|---|---|
| — | Hard | — | Abortion thought of | — | Death |
| — | Thick elongated | — | Artificial abortion | — | Death |
| — | — | — | Artificial abortion | Cure | — |
| — | Thick, soft | — | Artificial abortion | Cure | — |
| — | Rather hard | Dilatation | Artificial abortion | Cure | — |
| — | Thick | Dilatation | Artificial abortion | — | Death |
| — | — | — | Artificial abortion | Cure | — |
| — | — | — | — | Cure | — |
| — | — | — | — | Cure | — |
| — | Hardness and swelling of anterior lower part of uterus | — | — | Cure | — |
| — | Firm unyielding | — | — | Cure | — |
| — | — | — | Artificial abortion | Cure | — |
| — | — | — | Natural abortion | Cure | — |
| — | — | — | — | Cure | — |
| Cocaine application | — | — | — | Cure | — |
| Cocaine application | — | — | — | Cure | — |
| Ethereal Iodine application | — | — | — | Cure | — |
| — | — | — | Artificial abortion | — | Death later |
| — | Rigidity marked | Dilatation | — | Cure | — |
| — | — | — | — | Partial relief | Death |
| — | — | — | — | Cure | — |
| — | External os very small | Bougie | — | Cure | — |
| — | Hardness and swelling anteriorly at level of internal os | — | — | Cure | — |
| — | — | — | Artificial abortion | — | Death |

*Case* 47. Stoltz, *Gaz. Méd.* June 1852.

Has had one child before, pregnancy rather troublesome. In the second pregnancy sickness began in third month, went on for fifteen days, vomiting twenty times a day. Seen May 25, when very ill. On vaginal examination uterus found to occupy the small pelvis, the neck lying on the posterior vaginal wall. Stoltz tried to raise the uterus and succeeded so far that it projected at the hypogastrium without giving much pain. During this handling there was no attempt to vomit, and the moving of the uterus seemed to have done good. Narcotics ordered. Living at seventy-five kilometres distance, he had intended to propose artificial induction of labour to the friends. The day after, the vomiting was diminished and food taken. Five days later vomiting had returned and paticnt very ill. June 2, Stoltz went in order to induce labour, but it was found to be too late to do so, and patient died five days later.

This case was evidently one of anteversion of the gravid uterus. Sickness was relieved by raising the uterus up above the pelvic brim, but no steps were taken to prevent its re-descent into the pelvis. Probably had this been done, the result would have been different.—G.H.

*Case* 48. Ulrich, *Monatssch. f. Geb.* 1858.

Frau Fredenburg, æt. 34. Intercourse painful. First pregnancy. Seen when nearly three months pregnant. Vomiting began at six weeks, quickly increasing in severity, with acute epigastric spasms, great prostration. On examination the cervix was very high. The enlarged and doubled-up body of the uterus felt lying behind right horizontal ramus of pubes. Uterus markedly anteflexcd. Position of flexion distinctly felt through roof of vagina. Many attcmpts were made to replace dislocated uterus, all unsuccessful. Fruitless attempts also wcre made to introduce the sound into the uterus. Three weeks after admission into hospital, case con-

sidered hopeless even if uterus could have been emptied. Death end of fourth month. P.M. verified diagnosis. Uterine body $5\frac{1}{4}$ inches; flexion three inches from os. Under surface of uterus soft, upper condensed and firm. Ulrich states: 'The bending of the uterus and consequent hindrance to the regular expansion and growth of the uterus was the influence producing the obstinate vomiting.'

*Case* 49. Tyler Smith, *Obst. Trans.* Vol. I.

A case of excessive vomiting in early pregnancy depending on the irritation of the gravid uterus.

The patient was 19, previously healthy. The sickness began almost immediately after the beginning of pregnancy. When seen by Dr. Tyler Smith she was about two months pregnant. She was at this time in a state of extreme emaciation; the vomiting was constant; the pulse 120 to 140; great tenderness of epigastrium, occasional delirium, at other times semi-consciousness. She lay helplessly in the supine position, unable to move her body or limbs from extreme debility. The uterus was found to be enlarged, and the os softened. The diagnosis of pregnancy was made. By treatment with single teaspoonful doses of beef-tea or milk every half-hour she was kept alive, all other measures having failed to stop the sickness. Injections of beef-tea were also administered, and inunctions of cod-liver oil used. Emaciation, however, progressed, and a fortnight later she was found to weigh only $47\frac{1}{2}$ pounds! The nourishment was now increased to a tablespoonful at a time, and she steadily increased in weight. For a short time in Dr. Tyler Smith's absence this patient was under my care (Dr. G. Hewitt). At the end of October (when about five months pregnant) Dr. Tyler Smith found the uterine tumour above the pelvis brim: the fœtal heart was heard on November 29. Abortion set in spontaneously on December 3, and the ovum was expelled entire. The ovum was five months old, but small for this date. A photograph of the patient when about $2\frac{1}{2}$ months pregnant accompanies the paper. The patient did well for three weeks, when symptoms of rapid phthisis

became evident. She left the hospital in an advanced state of consumption in February following.

*Case* 50. Henry Bennet, *Inflammation of Uterus.* 4th ed. 1861, p. 175.

Patient æt. 29, married early, three miscarriages, leucorrhœa, bad health. Pregnant for fifth or sixth time. Stomach rejects everything. Sickness set in end of second month. Cervix voluminous, indurated, especially anterior lip, 'cervix very much retroverted.' Cervix attained and exposed with difficulty owing to extreme retroversion. Inferior lip and circumference of os presents a fungous bleeding ulcerated surface. Uterus a little enlarged. Patient proved to be pregnant. Caustics and other treatment employed. Uterus finally rose out of pelvis; induration at os disappearing. Delivery at term.

*Case* 51. Graily Hewitt. *Obst. Trans.* 1871.

Patient æt. 24, seen with Dr. Royston. Had previously suffered from menorrhagia, and had been unable to dance without discomfort. Sickness very severe for a fortnight. Patient seen in fourth month. Os uteri far back. Vaginal roof much depressed, uterus anteflexed, very low down. Treatment mainly observance of horizontal position. Sickness soon disappeared. Delivery at term.

*Case* 52. Æneas Munro, *Glas. Med. J.*, August 1872.

Mrs. ——, æt 21. Four weeks after cessation of menstruation sickness and nausea set in, frequent and painful micturition at eighth week, every meal vomited. Various medicines tried without effect. At tenth week found very ill, emaciated, vomiting frequent, retching following it. On examination 'uterus was acutely anteflexed . . . . it was quite fixed and in every way resembled a womb about second or third month of utero-gestation.' The attempt was made to push the uterus upwards, but the attempt failed then as well as frequently afterwards. 'No idea was entertained that there was a jamming of the fundus uteri . . . . for it

had not the contour of the fundus, and afterwards the sound when introduced went up freely about 5½ inches. The patient became worse until end of third month, when induction of labour decided on. Sound first used: after two days sponge tent, and then laminaria tents employed. Ovum expelled third day. Recovery; subsequent pregnancy ended favourably at term. 'The case described in a very remarkable manner bears out to a certain extent what Dr. Hewitt has said on the matter,' but the author thinks Dr. H. wrong 'in attributing the sickness of pregnancy exclusively to flexion of the uterus.'

*Case* 53. McClintock, *Dub. Med. J.*, May 1873.

Æt. 22, first pregnancy. Two months pregnant when first seen. 'The uterine tumour could not be distinguished above the pubes, but *per vaginam* the body of the organ could be felt enlarged and slightly anteverted, as is often found to be the case at this period of utero-gestation.' . . . 'It did not seem possible she could exist much longer unless the sickness was very decidedly relieved.' Ten days later she was so much worse that it was plain that unless relief was obtained she could not survive many hours. Abortion induced. Recovery.

*Case* 54. Graily Hewitt, *Dis. of Women*, 4th ed. p. 367.

Observed by Dr. Skerritt in Univ. Col. Hosp., æt. 21. Menstruation had been scanty and painful. Nausea and severe vomiting with hypogastric pain observed in third month of first pregnancy, os very far back. Uterus anteflexed, body much enlarged; felt a little more to left side. Body of uterus just felt over brim. Patient in process of cure, the uterus was rising above brim, and when I saw her a few weeks later, after rest in horizontal position, uterus was nearly normal. Sickness cured.

*Case* 55. Copeman, 'A Novel Treatment of Obstinate Vomiting in Pregnancy,' *Brit. Med. Journ.* May 15, 1875.

June 9, 1874.

I was summoned to a lady about 35 years of age, two

other practitioners present. Patient 6 months advanced in pregnancy and so reduced by almost incessant vomiting that great fears were entertained as to her safety. Slight uterine action I noticed accompanying the sickness, and on examination I found os uteri partially dilated so as readily to admit the finger. I advised bringing on labour without delay; the gentlemen present doubted if the patient would have strength to undergo the effort, though they agreed in the advisability of the course recommended, and asked me to perform the operation. I at once dilated the os as much as I could with the finger, and could feel the membranes and head of the child. Attempt was made to rupture the membranes by a catheter without success. Further steps postponed for an hour, 'when we were surprised to find that a longer period had elapsed without sickness than before, and we again waited in the hope that she might be able to take a little nourishment and so be better prepared to undergo any further proceeding.' During the rest of the night the patient improved, and it was determined 'to let well alone.' There was no return of sickness. She went to full term; child healthy and recovery complete.

[This is the case in which Dr. Copeman first employed dilatation of the cervix uteri in a case of severe vomiting of pregnancy].

*Case* 56. Copeman, *Brit. Med. Journ.*, May 1875.

Patient pregnant two months, severe vomiting, some degree of anteversion of uterus, and os found to be slightly patent. The os further dilated by finger, and the vomiting ceased from that time.

*Case* 57. Copeman, *Brit. Med. Journ.*, May 15, 1875.

Patient, mother of nine children. Now eight months pregnant. Vomiting generally present during early pregnancy, and sometimes for several months. Vomiting during last three weeks. Incessant uncontrollable vomiting present. Albumen and pus in urine, and a few casts; no dropsy. Os found to be patent, puckered and dilatable, and was further

dilated by finger, after which the sickness ceased (attended April 1875). Delivered safely at about eight months.

*Case* 58. COPEMAN, *Brit. Med. Journ.*, November 1875.

Patient has one child, now five months pregnant. Took severe cold, had agonising frontal neuralgia; constant vomiting then set in. On examination the os uteri found to correspond with the promontory of the sacrum, the uterus was anteverted to an extreme degree, and the head of the child was felt through anterior uterine wall below the level of external os, which was patent. Frequent micturition. Uterus was raised to a better position, in which it remained, by pushing up the fœtal head as far as possible. After this procedure the vomiting ceased entirely and did not occur again. The neuralgia also disappeared next day. For some weeks previous to onset of vomiting patient had taken much unwonted exercise—rowing.

*Case* 59. COPEMAN, *Brit. Med. Journ.*, September 28, 1837.

Mrs. M——, pregnant 11 weeks. Suffered from morning sickness, but last week sickness severe and uncontrollable, all food rejected. Much abdominal pain and constipation. Fundus uteri tender on pressure, dulness over cæcum, os found closed, fundus uteri displaced forwards. This displacement was rectified and bowels opened by an aperient. Next day sickness much less, but still continued a little. Os dilated by finger introduced to middle phalangeal joint. Patient went to full term.

*Case* 60. COPEMAN, *Brit. Med. Journ.*, May 17, 1879.

Primipara, æt. 25. Six weeks pregnant, vomiting three weeks, all nourishment rejected, nutrient enemata for two weeks, after which no longer tolerated. Position of uterus thought to be normal, posterior lip of os hard and unyielding; os would only admit urethral bougie. It was then gradually dilated, and subsequently, after two days' rest, vomiting gradually ceased. Delivery full term.

*Case* 61. Copeman, *Brit. Med. Journ.*, June 21, 1879.

Patient æt. 23. Has two children, pregnant six weeks. Excessive sickness, vomiting nearly incessant two weeks. After dilatation of the os by the finger as far as os internum, vomiting ceased.

*Case* 62. Atkinson, Halifax, *Brit. Med. Journ.*, November 1875.

Case related, multipara, observed at six months. Incessant vomiting present. Vomiting ceased after digital dilatation of os uteri.

*Case* 63. Minot, Boston U.S.A., *Brit. Med. Journ.*, September 1876.

In a case related a sponge tent introduced into the cervix allayed the vomiting.

*Case* 64. Dukes, *Brit. Med. Journ.*, February 23, 1878.

Patient æt. 33. Five children, five miscarriages; previous pregnancy relieved by induced premature labour. Vomiting set in on present occasion at two months. Vomiting incessant. Tissues of os very hard and cartilaginous. Os dilated digitally. Vomiting at once relieved and soon ceased.

*Case* 65. Gooch, *Brit. Med. Journ.*, September 1878.

Third pregnancy. Observation made when eight months pregnant; had had incessant vomiting for two months. Os uteri was dilated by finger, and membranes separated round os. Escape of much offensive discharge. Relief of vomiting. Delivery at full term.

*Case* 66. Rosenthal, *Brit. Med. Journ.*, August 1879.

Patient in a second pregnancy was cured of vomiting by digital dilatation of os uteri.

*Case* 67. Rosenthal, *Brit. Med. Journ.*, August 1879.

In a second case, a primipara reported as having been cured by digital dilatation of os.

*Case* 68. Fry (Swansea), *Brit. Med. Journ.*, March 1880.

In a former pregnancy premature labour required. Cervix, and especially posterior lip, hard and gristly. Neither finger or tent could be introduced into cervix. A long and slightly curved throat-forceps was used, and gently, but with some force, the os was thus dilated. Effect immediate in relieving the vomiting.

*Case* 69. Murillo (Santiago), *Lond. Med. Rec.*, February 1878.

Primipara. Sickness severe. Observation at third month; on four occasions, at intervals of a day or two, finger introduced into softened cervix as far as internal os. After a week sickness ceased.

*Case* 70. Graily Hewitt, 1879.

The patient was the wife of a medical man in Essex, æt. 24. I saw her first in 1878 during an attack of pelvic cellulitis following the fourth labour. Not very long afterwards she consulted me, suffering from severe vomiting with great pain and distress in the pelvic region. She was now in the sixth month of pregnancy. The cervix uteri was far back in the right posterior corner of the pelvis, the uterus anteflexed, lying close to the left ramus of pubes and jammed in the pelvis. The opinion given was that the abnormal position of the uterus was probably due to adhesions resulting from the pelvic cellulitis. The patient was kept in the horizontal position and the uterine body slowly rose out of the pelvis, the sickness disappearing. A miscarriage, however, occurred at seven months. This patient has had two children since at term. The succeeding pregnancy was attended in early months by symptoms like those above described, but in the last pregnancy no unusual symptoms

were observed. The uterus is stated to be now still somewhat displaced.

*Case* 71. Graily Hewitt, 1879.

Mrs. —, æt. 33, first consulted me in 1877. She had had four children, and since the last confinement had been very weakly. I found her suffering from anteflexion of the uterus with great congestive hypertrophy of the os and cervix. After some months she improved very much, and about a year after I first saw her she became pregnant but had a very early abortion. Shortly afterwards she became again pregnant. Almost from the first there was sickness. At the seventh week it had become very serious and severe. The cervix uteri was at this time much increased in size and thickness, and very firm and dense in consistence. The uterine body was tilted forwards but not very greatly so, for a pessary had been worn to obviate this tendency. It was removed as the sickness became worse, but as every day the sickness nevertheless increased in severity it was again employed, without effect however. And as the patient's strength was failing I decide to dilate the cervix after the plan employed by Dr. Copeman, with the view of arresting the sickness, or as a first stage in the induction of abortion should the sickness undergo no mitigation. For dilating the cervix I employed a two-bladed metallic dilator, which acts with great exactness and force. This instrument was one formerly used by the late Dr. Rigby. The cervix was so dense that the greatest difficulty was experienced in dilating it, and eight hours were spent, including frequent intervals of rest, in enlarging the cervix to diameter of the first joint of the little finger. The following day the sickness had become relieved. In the evening labour pains set in, and abortion occurred two days after dilating the cervix. The sickness was no longer troublesome, and for a time hopes were entertained of saving the patient's life. She, however, sank, apparently from exhaustion, a fortnight afterwards. In this case the conclusion forced upon me was that the severe sickness was associated with the dense thickened state of the cervix, and

this state of the cervix was coupled with an imperfectly cured anteflexion of the uterus.

*Case* 72. Graily Hewitt, *Dis. of Women*, 4th ed. p. 368.

In 1877 Mrs. —, æt. 33, who had had eight children and three miscarriages, consulted me for very severe sickness with intense mental depression, the patient being apparently unable to bear her suffering. The os uteri was swollen, the uterus anteflexed. Tents had been employed unsuccessfully to bring on abortion. The patient had suffered from similar symptoms in previous pregnancies. Result not known.

*Case* 73. Graily Hewitt, *Dis. of Women*, 4th ed. p. 369.

In 1879 Mrs. —, æt. 34, consulted me for constant sickness. She was three months pregnant. Four children. I found the os far back, squeezed against the sacrum, the body of the uterus anteflexed and jammed over behind the pubes. She was ordered to rest in bed for a week, and suitably fed. At the end of a fortnight sickness only observed once a day, in a month moving about freely without sickness. Delivery at term. In this case I should have employed reduction of the uterus at once, but the patient resided in the country and it was thought best to try simple measures first.

*Case* 74. Marion Sims. *Annal. de Gynécol.* t. ix. 1878 (*see* Pugliatti) p. 432.

Patient pregnant for fifth time. Had previously had abortions with incoercible vomiting. The lips of the os were found granular and covered with abundant leucorrhœal secretion. Application of solution of nitrate of silver (1 in 10) was made, and cure followed.

*Case* 75. Haddon (Manchester), *B. Med. J.* Nov. 8, 1879.

Three cases are related in which vomiting of pregnancy was successfully treated by applying nitrate of silver to a congested and eroded cervix.

*Case* 76. Jones (Chicago), *B. M. J.* July 13, 1878.

In five cases cervix was cauterised with nitrate of silver, four were primiparæ. The state of the uterus is not recorded.

I have next to direct attention to a most valuable paper on the subject by Professor Horwitz,[1] of St. Petersburg, published in 1883, and in which he relates particulars of ten cases of this disease which have fallen under his own observation, these cases being reported in such a manner that they constitute a most important addition to the scanty recorded materials. In all the ten cases the vomiting was of a most serious character.

I propose to offer a brief analysis of the cases related by him.

*Case* 77. (Case 1 of Horwitz series.)

Primipara; æt. 22. Menstruation began early, scanty, latterly more profuse. Severe vomiting set in at the tenth week, together with presence of a peculiarly unpleasant smell (perceived by the patient). Examination when scarcely four months pregnant: portio vaginalis soft, somewhat thickened, inclined directly backwards, the fundus 'markedly anteverted, lies on posterior surface of symphysis pubis, can only be redressed with very great difficulty, giving the patient much pain, slight flexion in the anterior uterine well.' Frequent micturition. Attempts ineffectually made for some days to improve position of uterus by tampons of sponge. Finally abortion occurred and relief followed.

*Case* 78. (Case 2 of his series.) Horwitz, *loc. cit.*

Æt. 24. A previous abortion. Uncontrollable vomiting set in at tenth week of second pregnancy. Peculiar

[1] 'Ueber das unstillbare Erbrechen der Schwangeren,' *Zeitsch. f. Geburtsh. und Gynackologie*, Band ix, Heft 1, 1883, p. 110. Translated from the original Russian, published 1882.

sensitiveness of organ of smell. On examination uterus appeared larger than it should be, and especially wide at the fundus, which was 'very decidedly anteverted.' Uterus replaced with difficulty, giving patient much pain. Body of uterus softish. Cervix rather hard, directed backwards. The patient was so ill that artificial abortion was suggested. It was not carried out. Death a few days later.

*Case* 79. (Case 4 of his series.) HORWITZ, *loc. cit.*

Æt. 24. Patient had suffered from symptoms simulating chronic gastric catarrh for three years; occurrence of pregnancy followed gradually by access of vomiting, which became uncontrollable. Portio vaginalis much elongated, thickened, directed backwards; uterus much sunk down anteriorly, redression very difficult, a decided flexion (Einknickung) on anterior surface. Artificial abortion induced; result diminution of sickness, but death followed from exhaustion three days after. The stomach, on post-mortem examination, showed small cicatrices, results of ulceration, together with thickening and proliferation of tissues in the vicinity; also a constriction, dividing the stomach into two parts, and thickening of the walls corresponding to the constriction. Horwitz suggests the term 'gastritis phlegmonosa' as descriptive of the appearances presented.

*Case* 80. (Case 7 of his series.) HORWITZ, *loc. cit.*

Æt. 24. Vomiting set in after one month's pregnancy. When seen at mid-pregnancy there had been uncontrollable vomiting for five weeks. The fundus reaches two and a half fingers' breadth above pubes, very sensitive to touch; portio vaginalis longer than normal, conical, directed backwards; whole uterus softish, very sensitive, and anteverted. Uterus redressed with great difficulty, occasioning much pain; sponges were employed to replace uterus, retained five hours. Following day treatment repeated. After four attempts condition of patient no better. Artificial abortion decided on; brought about by dilatation of cervix with sponge, and subsequently rupture of membranes by sound. Vomiting ceased

during operation. Patient recovered. Two days afterwards uterus found decidedly anteverted.

*Case* 81. (Case 8 of his series.) HORWITZ, *loc. cit.*

Æt. 31. Formerly treated for dysmenorrhœa, menorrhagia, and sterility. There had been considerable anteflexion, and severe cervical endometritis. Treatment was successful, patient conceived, but aborted at third month; symptoms returned. Patient went abroad, had a child, subsequently returned home. Patient now two and a half months pregnant, suffering from severe vomiting; portio vaginalis much thickened, softish, displaced much backwards and to left; the fundus much larger than it should be, rather hard, bent forwards and to the right side. Speculum shows decided redness of cervix and eversion of anterior lip especially. Treatment: sedatives, some scarification of anterior lip and application of caustic, nutritive enemata, &c. Condition after two weeks' treatment worse. Artificial abortion decided on, procured by use of sponge and sound, and concluded in three days. Patient recovered well. [It is not stated whether redression was attempted or not.]

*Case* 82. (Case 9 of his series.) HORWITZ, *loc. cit.*

Æt. 20. Primipara. Nausea set in early, severe vomiting quickly followed, and patient's condition became very serious. Ordinary measures useless. Portio vaginalis conical, rather hard, lies very low, and only slightly deviating backwards; uterus corresponds to two and a half months' gestation, very decided anteflexion; fundus very sensitive to touch, especially on attempting correction of its position. Hot douches prescribed. After two days no improvement; vomiting incessant, great exhaustion, pain in abdomen. Copeman's treatment was attempted; bougies used to dilate the cervix, and after a time finger could be introduced. Following day cervix still more dilated, effect on patient's condition trifling. Two days later death imminent. Artificial abortion was then induced, and ended in two days. The vomiting occurred a few times after emptying of uterus and

then ceased. Attack of perimetritis four days later, from which patient slowly recovered.

*Case* 83. (Case 10 of his series.) HORWITZ, *loc. cit.*

Æt. 36. Four children, last four years ago, since which had suffered from pains, leucorrhœa, and dysmenorrhœa. Vomiting set in seven weeks after commencement of pregnancy, and speedily became severe and serious in its effects. Patient much emaciated, abdomen very tender; the fundus uteri two fingers' breadth above pubes, more to right side; portio vaginalis thick, elongated, directed decidedly to the left and backwards so that the os is reached with much difficulty; tissues of uterine walls, especially fundus, thickened. The attempt to redress the uterus produces severe pain. The author considered the case one of pregnancy complicated with chronic parenchymatous metritis and marked anteversion. Replacement of the uterus was attempted, a sponge placed under the portio vaginalis, hot vaginal douches every three hours, nutrient enemata and horizontal position. Some days later patient worse. Copeman's dilatation of the cervix was then tried, and with temporary good results. This operation repeated next day, but failed to produce an effect. The fifth day after first visit artificial abortion decided to be necessary, accomplished in two days and a half. The vomiting ceased, but five hours later patient seized with severe constriction at the chest, and breathlessness and death speedily occurred. Horwitz considers it probable that death occurred from embolism of the pulmonary artery.

The ten cases related by Horwitz are truly of remarkable interest in connection with the subject now under discussion. In seven cases the uterus was notably anteflexed or anteverted; not only so, but this alteration was so marked that mechanical efforts were made in six of the cases by Horwitz to place the uterus in a better position. In one of the other cases, where no such mechanical elevation was

attempted, the patient was thought to be the subject of extra-uterine pregnancy, which proved to be an erroneous diagnosis. In this case the uterus was obliquely anteverted, but there was a tumour behind which obscured the diagnosis. In most of the cases the uterus was very sensitive to the touch, and in the greater number of them the author considers that the uterine walls and cervix were in a state of parenchymatous inflammation. The facts stated by Professor Horwitz in reference to these cases, facts which I have carefully embodied in the above abstracted accounts of his cases, are very striking in reference to the association of the displacements with the sickness. The conclusions drawn from the cases by Professor Horwitz are absolutely contradictory one to the other, as I propose to show.

In discussing the pathology of the affection Horwitz criticises the views I had expressed on this subject in 1871 in these words: 'In reference to the opinion of Graily Hewitt that in the uncontrollable vomiting of pregnancy he had frequently found the cause to be presence of flexions and versions of the uterus, *he appears to over-estimate the frequency with which alterations in the shape of the uterus are associated with hyperemesis of pregnancy*,' p. 138. (The italics are my own.—G. H.)

Another quotation: 'The hyperemesis is connected with the presence of an inflammatory condition of some portion of the genital organs, but especially in the uterus. The uterus is generally found larger than it should be for the period of pregnancy reached. This can only be explained by presence of parenchymatous inflammation of the uterine walls. Hence arises the generally-present hyperæsthesia of the

uterus and the more or less immobility of it. *Thereby is the uterus generally so anteverted that the fundus is made to rest on the posterior surface of the symphysis pubis. It is very difficult or quite impossible to redress the uterus under such circumstances.* (Italics my own. —G.H.) The question how and when the parenchymatous inflammatory condition arises is very difficult to answer. Probably it commences before the beginning of pregnancy, for we can scarcely believe that in so short a time the inflammatory action could produce such marked effects' (p. 139).

Again another quotation: 'We have in most cases to deal with versions of the uterus, and *sometimes to such a degree that the fundus uteri touches the symphysis and is extremely difficult to redress; sometimes the uterus appears to be wedged in the pelvis. The change of position of the uterus in such an extreme degree cannot be denied to have the first significance, because it must have a powerful disturbing effect on the circulation in the already parenchymatous inflammatory condition of the uterus.* In such cases it is rationally and imperatively indicated to rectify the abnormal position. We have been convinced by several observations that *the direct redression of the uterus is the most beneficial measure that can be adopted'* (p. 170). (Italics my own.—G.H.)

The second and third quotations give opinions which are in agreement with the details of the cases Horwitz relates, and from which it is shown that flexion or version, together with wedging of the uterus in the pelvis to such a degree that there was necessity for manual attempts at reduction, were associated with very severe sickness in as many as six out of the seven cases. The opinion given in the first

quotation from Horwitz's essay is best criticised by calling attention to the details of his own cases. There is the most complete contradiction between the last two and the first of the quotations, as will be apparent from the passages which are here printed in italics.

*Case* 84. HASLETT, *Brit. Med. Journ.*, March 8, 1884.

The patient, a multipara, had suffered from dysuria and bearing-down pains for some time. The sickness set in two months after pregnancy began. It was incessant. The uterus was found in a state of anteflexion, the fundus felt as a rounded tumour the size of a turkey's egg. Efforts to replace the uterus unsuccessful. Five days later it was determined to raise up the uterus and provoke abortion. Catheter introduced four inches without stilette. Uterus then raised up. Abortion following day. Recovery.

*Case* 85. ROBERT DAVIS, of Low Fell, Gateshead-on-Tyne, *Brit. Med. Journ.*, March 29, 1884.

The patient a primipara, æt. 23, pregnant two months, had been sick for three weeks, suffered much from bearing-down and dysuria. The ordinary remedies tried for a week without effect, and she became much emaciated and too weak to get out of bed. Sickness very severe, only once relieved for six hours partially, by minim doses of ipecacuanha wine every quarter of an hour. Patient refused examination, but after four days longer consented. Uterus found anteflexed, pregnant, fundus tender, enlarged and firmly fixed at a lower level than the os. With considerable difficulty and much pain to the patient two fingers in the vagina with the assistance of the other hand over the pubes served to forcibly push up the fundus until both hands met behind the pubes. Patient left with hips raised. Vomiting ceased at once and food taken. Next day a cradle pessary was placed after the fundus had again been pushed from the position which it had to a comparatively slight extent resumed. Recovery. Removal of pessary later on. Pregnancy went to full time.

child healthy. Has since borne three children, exhibiting similar symptoms but in decreasing degrees in each pregnancy. Identical mechanical treatment has been adopted with desired result. Mr. Davis, who reports this case, comments on Dr. Haslett's case, and with truth says: 'Dr. Haslett advances no reason why the treatment should not have included the prevention of abortion instead of its production.'

*Case* 86. Campbell (Augusta, Georgia, U.S.A.) *loc. cit.*

Two months advanced, first pregnancy. Extreme nausea from date of conception; nausea and debility great. Patient was in convalescence from fever. Consultation as to procuring abortion. Gravid uterus found in a state of decided anteversion, fundus resting heavily upon the pubes and compressing the bladder. Morphia found ineffectual. Patient placed in genu-pectoral position, and full and complete reduction was made and a gum elastic ring pessary applied. Nausea and vomiting soon ceased. Delivery at term.

*Case* 87. Graily Hewitt, *Private Case Book.*

Mrs. A. B., aged twenty-two years, primipara. Treated before pregnancy for dysmenorrhœa, anteversion, and flexion. Sickness soon set in on occurrence of pregnancy, quieted at first by opiates. During second month sickness controlled by horizontal position, uterus occupying a low position and pressing downward. At beginning of third month, after an exertion, severe sickness set in, and the uterus which had begun to rise up was found much lower, felt hard and painful to touch from vagina. Following day patient very ill. Two attempts made to push up uterus through vaginal roof, with only partial relief; resistance to pressure very considerable. Sensation of numbness. During night sickness most violent, uterus found to have descended again. Condition one of great prostration and much pain. A spherical air-ball pessary was placed in vagina, and distended to 2 in. diameter. In two hours patient felt comfortable. Morphia suppositories and nutrient enemata had been employed unavailingly.

Next day patient better; air-ball pessary removed after twenty hours' use, vagina injected antiseptically, and pessary reintroduced. Uterus found higher, os had moved forward. Following day no sickness, slight escape of fluid from vagina; pessary removed at bedtime, it being thought that possibly liquor amnii had escaped. Next day patient not so well. Consultation. Morphia and atropine used as suppositories; hot vaginal injections; bromide and chloral at bedtime. Next day, some sleep during night. Uterus again pushed up by fingers, being found low down in pelvis. Nine days after recurrence of the vomiting had followed the exertion, patient better, but uterus still felt very low; it had now assumed an oblique position in pelvis, os being toward right sacro-iliac synchondrosis, and fundus to the left, forward. Fundus tender, no discharge. No medication for five days; uterine body hard, rather too low in oblique diameter. Three days later, tenderness to left side of vaginal roof. Inserted air-ball pessary for four hours. Next day, tenderness less. During last week of third month uterus pushed upward a little on alternate days, this being found to relieve pain present. Patient allowed to stand, but pain recurred, as also nausea. Uterine artery, left side, felt pulsating violently, but as uterus was raised pulsation became natural; this fact noticed several times.

After this little treatment was required except occasional elevation of uterus, and the uterus gradually assumed a more natural position. Patient went out at end of the fourth month. No more sickness. Delivery at term.

*Case* 88. W. Doe, *Boston Med. and Surg. Journ.*, February 10, 1886.

Patient aged 24 years; two children. Vomiting began first week; lasted till just before end of twelfth week. Nausea constant and intense, and vomiting of a thin, yellowish fluid every two or three hours. Great emaciation, ptyalism, breath offensive, tenderness over epigastrium and œsophagus; pulse 116, temperature 97. Cervix firm and unyielding, os only slightly patulous. Uterus markedly anteverted, the fundus resting against the rami of the pubes, and on ex-

amination could be raised up out of the cavity of the pelvis, but fell back again directly upon the removal of the finger. Considered to be three months advanced. Nutrition by enemata. A consultation held; the question of artificial abortion considered. She was considered too weak to bear the shock, and the possibility of hæmorrhage or septicæmia. 'In favour of delay, and trusting to other means, was the fact that in her preceding pregnancy the nausea and vomiting, though much less severe, yielded suddenly and completely, at the beginning of the fourth month, after the attending physician had, on vaginal examination, by chance raised the uterus high up out of the cavity of the pelvis.' Further, the reporter says: 'As soon as the pressure was permanently removed by raising the body of the uterus out of the pelvic cavity, the vomiting and nausea instantly ceased. A peculiar feature illustrating the principle of cause and effect here was that, as soon as the vaginal tampons were at all displaced, so as to allow the body to prolapse and antevert, the nausea and vomiting would directly return.'

The exciting cause of the vomiting in this case seemed to be wholly the displacement of the uterus, and consequent pressure upon the pelvic parts. Tincture of iodine had been applied to the cervix without effect.

[This case of Doe's is a most remarkable one. A very instructive feature is the history of what occurred in a previous pregnancy, where 'by chance' the attendant raised up the uterus, and relieved the patient thus from the sickness. This incident was successfully imitated by the application of tampons, in the succeeding pregnancy.—G. H.]

*Case* 89. Augustus F. Clark, *Journal of American Medical Association*, May 23, 1885.

Patient aged 21. Married September, 1867; sent for February 21, 1868. Excessive vomiting; could retain nothing. Greatly depressed; pulse rapid, sometimes over

140. 'Cervix was small, and uterus somewhat anteflexed.' Had experienced from time to time a good deal of dysuria; traces of albumen. Nutrient enemata used for a time, but on March 1 believed to be dying; abortion at once procured by a gum bougie left some hours. Next day, recovery.

*Case* 90. Veatch, *Peoria Medical Monthly*, 1884, p. 682; 1885, p. 687.

Primipara, aged 27. Vomiting began in third week, not troublesome till fifteenth week, when vaginal examination made, and showed extreme anteversion. Patient refused to have attempt at replacement made; cervix cauterised. Failure up to twentieth week, when abortion occurred. No vomiting after first indication of abortion. Death one week after from septicæmia.

*Case* 91. De Voe, *American Journal of Obstetrics*, August, 1884, p. 638.

Patient aged 24. Second pregnancy. At three months repeated vomiting, hæmatemesis, hæmoptysis, inanition. Fundus low down against pubes; os high, and well back against rectum, soft, patulous, eroded; much leucorrhœa. July 19: applications of nitrate of silver. July 27: slightly better; faradisation of stomach twice a day. August 9: considerable improvement, but cannot sit or stand. As preliminary to use of a Thomas's anteversion pessary, uterus turned well back, and held in retroposition for several minutes; pessary applied. Progress normal afterwards. Labour at full term.

The two following cases are given illustrative of 'a new method of treating the vomiting of pregnancy.'

*Case* 92. William Duncan, *Lancet*, 1887, vol. ii., p. 754.

Patient aged 19, primipara. Sick one month, two months pregnant. *Uterus marked by anteflexion, and decidedly tender when pressure made on cervix.* Vagina freely painted

with 15 per cent. solution of cocaine, and by probe and cotton-wool; also inside of canal to three-quarters of an inch. A placebo administered also. No vomiting after taking the latter. 'The vomiting stopped without any interference with the flexion.'

*Case* 93. W. Duncan, *Ibid.*

Patient aged 23. Two months and a half pregnant. Constant vomiting for six weeks. *Uterus somewhat anteflexed.* Same application made, but not inside cervix. No vomiting for four days, then recurrence, but less severe. Second application, within cervix also. No more vomiting.

*Case* 94. Stedman, *Bost. Med. and Surg. Jour.*, 1883, 109, p. 529.

A young woman; two children. Vomiting began fourth week, ended fourteenth week. Condition alarming: all food rejected for forty-eight hours; delirium, dry brown tongue, rapid pulse. Os patulous and very red. Cervix was flexed and very soft. Ethereal tincture of iodine applied liberally to cervix. Vomiting ceased in twenty-four hours.

*Case* 95. Thos. C. Smith, of Washington, D.C., U.S.A., from *Amer. Journ. of Obst.*, 1886, p. 588.

Mrs. —, æt. 25. Married a few months. Sickness began at one month. Sisters died of consumption; is anæmic. The sickness very severe, remedies of no service. Patient fed by beef-tea enemata, and kept in bed. Bromide and laudanum given; result, diarrhœa. 'Uterus in a condition of anteversion and anteflexion, but not more than I had observed in other cases when the distressing symptoms present in this case were lacking.' Emaciation progressed; great abdominal tenderness, breath offensive, tongue dry, brown; cadaveric odour; was so weak could not move limbs; became a living skeleton. After six weeks' unavailing treatment, it was resolved to induce abortion by bougies. 'Bougie introduced without difficulty, the displacement previously referred to having greatly lessened; abortion easily induced, relief in-

stantaneous. Pregnancy ended at end of three months: three-and-a-half months later died of rapid consumption.

Dr. T. C. Smith comments on the subject of excessive vomiting in pregnancy, and expresses himself on Graily Hewitt's views, to the effect that the testimony of the eminent gentlemen who participated in the discussion in the Obstetrical Society of London, in 1884, on Dr. Hewitt's paper, ought to convince anyone of the unsoundness of that writer's opinions on the questions involved. However in the discussion on the reading of Dr. Smith's paper at Washington, Dr. Busey 'thought that an attempt should have been made to rectify the displacement, or to dilate the os, or to apply nitrate of silver. Concerning Hewitt's theory, he thought there was more in it than most were willing to admit, but less than its author claimed for it. That incarceration, displacement, flexion, &c., of the uterus, were causes in some cases, was shown by the reports. There was evidence enough to make us careful before excluding it.' Other speakers besides Dr. Busey also considered that other measures should have been tried, or a consultation held before inducing abortion. Dr. Smith, in reply to Dr. Busey, said he had not carried out Hewitt's suggestions, because his views were not sustained by the members of the London Obstetrical Society.

*Case* 96. MEREDITH, of Wellington.[1]

Mrs. W—, æt. 28; married two years. Severe sickness set in at about six weeks of pregnancy. Uterus anteflexed, cervix hard; os tilted backward, its anterior lip rigid, and thicker than the rest. Every remedy (eight drugs enume-

[1] On the Vomiting of Pregnancy, and Menorrhagia. (Arrowsmith Bristol, 1888.)

rated) failed in relieving sickness. Tender spot, pit of stomach; condition alarming. Fourteen days later, dilatation of os by finger tried; impracticable; sound also failed. Nutrient enemata, with morphia, for a fortnight. Sponge-tent next tried; slight dilatation, and relief of sickness for a while. Sickness in two days again severe. Sponge-tent again used —longer tent; kept nine hours. Effect good. Little sickness after this. Delivery nearly full term; child alive.

Dr. Meredith says, speaking of Dr. Graily Hewitt's theory of causation of pregnancy-sickness: 'Applying this to my case, it may fairly be inferred that the tent in causing the dilatation brought about a rectifying of the flexed condition, and so, removing the cause of the disorder, the good results followed; but if so, the altered condition must have been very slight, for I was not able to appreciate it by mere digital examination.'

Meredith adds: 'The flexion, in the marked form in which I discovered it, was more probably the consequence of the vomiting than its cause.' It is important to note that Meredith found 'the cervix was *hard*,' 'its anterior lip rigid, and thicker than the rest.' See above.—[G. H.]

Another point in this case is the fact that the patient was exposed to sewer emanations. Dr. Meredith thinks this may have exercised a powerful influence in the case.

*Case* 97. R. A. Kingman, 'A Case of Pernicious Vomiting of Pregnancy ending Fatally,' *Boston Med. and Surg. Journ.*, Feb. 7, 1889.

This case is related at some length, and not easy to abbreviate.

Mrs. —, æt. 24; primipara. Always painful menstruations,

feeding irregular, over-work at school, tight-lacing. Attack of tonsillitis and rheumatism four months before pregnancy; systolic murmur, occasional precordial pains some years. Morning sickness, rather severe, soon set in; relieved by treatment; was at seaside and better. When three months, took long drive and exerted herself. This was followed by severe vomiting and incessant retching. In five days aspect one of despair. Had had fæcal impaction, for which took calomel and bismuth. Nutrient enemata. On vaginal examination 'uterus found low in pelvis; anteflexion of body and cervix, the posterior lip being flattened against the floor of pelvis, the anterior lip elongated, and projecting in axis of vaginal outlet. Uterus and ovarian regions sensitive, left most. In the knee and chest position the uterus dropped forward above the brim, and was retained there by a tight pessary. Cervix much eroded and angry in appearance, sensitive.' Next day, condition about same; packing removed, and nitrate of silver solution applied. A short-lived improvement followed, but following day a second application (what?) produced no result. Rheumatism then set in. Removed to hospital; repetition of caustic, some relief to vomiting. A fortnight later vomiting more intense, uterus found again low in pelvis and sharply anteflexed; cervix treated and uterus packed. Symptoms improved for a time; following day packing removed, and inflated ring with packing in front employed. Relief till evening, when vomiting continuous till the cotton removed and pessary readjusted. Very little vomiting for thirty-six hours, then recurrence. Sodic bromide and morphia given. Pessary removed, and one of solid rubber used. Superficial slough from pressure of other pessary. Relief for two days. Mind befogged. Consultation; decision to wait, omit chloral. Next day increasing stupidity; bromide omitted, tincture iodine to cervix. Patient bright and comfortable in evening; calomel, two grains; two doses. Next day vomiting, bleeding from cervical slough; pessary removed. Next day rubber ring replaced, as uterus found re-entering pelvis. Next day three loose dejections, profuse vomiting; collapse. On consultation thorough dilatation of

cervix agreed on. Dilatation of cervix by Ellinger's instrument and tupelo tent. Pulse steadier. Internal os dilated. In three days after last consultation, further consultation with Dr. Doe; advice against premature labour. No vomiting since last evening. Following day, better. Uterus supported by packing, placed wholly in front of cervix. Two days later uterus contracting vigorously every four or five minutes. Packing removed, membranes found projecting. Delivery in afternoon; placenta adherent partly. Fœtus dead; macerated about four months, apparently dead some days. Patient tolerably comfortable; vomited once, took champagne, slept one hour, woke with start, and died after two or three gasps. No hæmorrhage. No post-mortem. The author attributes death to pulmonary thrombosis, coming from diseased heart, with roughened endocardium and feeble circulation.

Commenting on the case Kingman says:—'Temporary relief was experienced after application to the eroded cervix; temporary and very marked relief resulted from straightening and lifting the distorted uterus; benefit was had from warm and soothing applications, poultices and douches. Patient felt better after thorough action of bowels; stretching the cervix, perhaps, helped somewhat. In every case relief was only temporary, as a rule only partial.' Thinks there is always some condition of nervous system acting as predisposing. 'Whether one side with Graily Hewitt, and consider the flexion as of greatest importance, or accept the view of Veit concerning endo-metritis, we should not willingly allow such conditions to exist in any woman who may become pregnant.'

In discussing above case, Dr. Doe could not say whether the dilatation of the cervix and the packing were the cause of the miscarriage. He had known a large packing induce miscarriage.

Dr. Boardman cites three cases in support of mechanical theory of the cause of vomiting in pregnancy (*see ante* p. 22).

*Case* 98. GUÉNIOT (Paris), 'The Vomiting of Pregnancy,' *Bull. de l'Acad. de Méd.*, September 17, 1889.

In one remarkable case I saw ten years ago of a patient in the country, the uterus was low down, and its cervix, strongly flexed, was, as it were, crushed by the weight of the body against the perineum. By disengaging the cervix, by aid of elevating pelvis and lowering the trunk, the primipara, about three months advanced, was quickly cured, and delivery took place at term naturally.

[The uterus seems to have been in a state of anteflexion.—G. H.]

Guéniot further says: 'This year (1889), with Drs. Renouard and Gaillard, I saw a good case of cure by the Gariel pessary.'

*Case* 99. PUGLIATTI, 'Contributo all' Etiologia e Terapia del vomito incoercibile nelle gestanti,' *Il Morgagni*, July and August, 1889.

N. N., æt. 21. Vomiting set in fourteen days after commencement of pregnancy. Two months later condition very critical; emaciation extreme, and prostration great. The cervix found directed backwards, anteriorly; through the vaginal roof the uterus felt expanded. The double examination shows uterus to be in a marked condition of anteversion, size of about ten weeks of gestation. Cervix fusiform; os felt as a small punctiform depression. Speculum shows marked congestion of os. The uterus has a certain degree of mobility. Rectal alimentation has been in use for some time. The author considered the uterine displacement of great importance in production of the vomiting. Was the uterine deviation present previous to the pregnancy? the author inquires. He leaves this in doubt, but he conjectures

that pressure of the loaded rectum may have produced displacement during pregnancy. A tampon of glycerine was now placed in the vagina, in the posterior fornix, in order to sustain the uterus in a proper position; after eighteen hours, found to have had no effect on the vomiting, and artificial abortion judged necessary. Copeman's procedure was found impracticable, as the os was so small and rigid as to prevent introduction of finger. Finally, two days after taking charge of the case, an elastic bougie was introduced about 4 in. into the uterus. Soon afterwards much mucus, mixed with blood, escaped, immediately after which patient could take food. Bougie withdrawn following day. Progress good; gestation to full term. Delivery normal. Death from puerperal septicæmia. Child well.

Pugliatti believes that the extreme narrowness of the os externum led to accumulation of mucus, caused pressure on the nerves of the cervix, and thus led to the vomiting. The bougie relieved the stenosis, and led to escape of mucus and the relief observed.

[There is another factor in this case—viz., the reduction of the displacement by the use of the bougie.]

*Case* 100. Graily Hewitt, *Private Case Book.*

Mrs. —, æt. 32. Has had three previous pregnancies. The first ended in a miscarriage. In all there was severe sickness. In the two latter pregnancies the uterus was found much anteverted and flexed, and the condition of the patient was one giving great anxiety. On both occasions the uterus was raised in front, and sustained by use of an air-pessary quite spherical in shape. On both occasions patient went full term. Patient's last confinement six years ago. July, 1889: now about six weeks in third pregnancy; suffers from much sickness, faintness, and discomfort in pelvis. Has been in bed three days, and feels better. On examination the os uteri feels thick, and there is a hardness and resistance at anterior part of cervix. Uterine body in good position. Next

day carried down stairs. Two days later uterus found quite anteflexed and low down, tenderness of vaginal roof in front of cervix. Three days later suffering much; although remaining quiet, has had several attacks of bad sickness and faintness, even in bed. Next day better for keeping in bed, but good deal of pain. Uterus low in front, tender. Gentle pressure of finger used to elevate body of uterus. To remain in bed. A fortnight later some bearing-down and pain; find much swelling and tenderness, and resistance across roof of vagina above front of cervix—quite hard in places. Patient has been up a little; ordered to bed, and indiarubber ball-pessary adjusted. Following day vaginal roof-swelling much reduced; there is felt a circumscribed swelling, size of a nut, in front of cervix, in concavity of the flexion; tenderness nearly gone. Patient finds that the effort of washing in standing position makes her worse. From this time continued to use air-ball pessary for about two months, and when four months pregnant was able to walk a little without discomfort; sickness practically ceased. Delivered at full term of healthy child.

*Case* 101. JAGGARD, *Amer. Gyn. Trans.*, vol. xiv., p. 442.

Patient æt. 34, primipara. Pernicious vomiting, apparently developed out of morning sickness, during the first half of pregnancy. Induction of abortion; temporary relief, but vomiting did not quite cease, and in three weeks returned with great severity. Death two weeks later. Dr. Jaggard gives probable adjuvant cause of the hyperemesis, passive distension of the uterus by the ovum. The uterus was, prior to the abortion, in a state of mobile anteflexion, freely movable; the size, contour, mobility, texture, and sensibility of the organ apparently normal; the anteflexion could be made to disappear on gentle bimanual manipulation. The author considers that in this particular case the anteflexion was a physiological phenomenon; there was no rigidity of os. There was no post-mortem. He states that it is conceivable that secondary centric changes may have occurred that rendered the disease independent of its original determining cause.

This case is a most interesting and valuable one, but would be more valuable if facts as to the post-mortem condition had been obtainable. It resembles in some respects Tyler Smith's (*see* Case 49) and Smith's (Washington), (*see* Case 95). It may be pointed out, that although the anteflexion could be readily made to disappear, the condition may yet have been one of great importance etiologically. The case of Dr. Doe (Case 88) may be cited, where the anteflexed uterus was raised by a tampon, and the sickness cured; also Kingman's case (97). The very curious fact of the return of the vomiting after the abortion is compatible with the explanation I would suggest, that the sickness returned because the anteflexion returned. I have seen severe, even deathly, sickness undoubtedly due to anteflexion of a *non*-gravid uterus.

This case, Dr. Jaggard points out, did not present either impaction or induration of the cervix, the two factors which I had particularly designated as causing the severe vomiting of pregnancy in my paper read at Washington, 1888. But the patient was 34 years of age; she had always been in a feeble condition; and that there was some local cervical condition helping to excite the vomiting seems proved by the fact that applications of nitrate of silver solution did considerably relieve the patient, though not permanently so. It seems to me very probable that there was slight sclerosis of the cervix, which, coupled with the anteflexion, caused the vomiting; and, further, that the nerve-centres were unduly impressionable.

## *GROUP D. CASES OF SEVERE VOMITING IN PREGNANCY IN WHICH INFLAMMATORY CHANGES WITHIN OR NEAR UTERUS WERE NOTED*

| Number of case | Authority | Condition of uterus, &c. | Result |
|---|---|---|---|
| 102 | Chomel | Pus found on external surface of decidua | Death |
| 103 | Dance | Case 1.—Pus between decidua and placenta; contraction at junction of uterus and cervix | Death |
| 104 | Dance | Case 2.—Uterus congested, walls thin | Death |
| 105 | Jaggard | Decidua much hypertrophied; termed by Author, endometritis gravidarum. Vomiting began 16–18th week. Art. ab. | Cure |
| See No. 65 | Gooch (also in Group C) | Dilatation of os by finger. Escape of much offensive matter. Relief of vomiting. Delivery full term | Cure |
| 106 | Horwitz | Rigors set in third month pregnancy; perimetric exudation firm. Cure by leeches, hot injections, &c. | Cure |
| 107 | Horwitz | Tumour felt behind uterus, probably cellulitic. Thought to be extra-uterine pregnancy. Laparotomy | Death |

*Case* 102. CHOMEL (quoted by Anquetin), *loc. cit.*

Patient died from effects of severe vomiting in pregnancy. Pus was found on the external surface of the decidua.

*Case* 103. DANCE, *Rép. Gén. d'Anat. et Phys.*, vol. iii., p. 70.

Æt. 21, single. Constant vomiting for two months; last menstruation, three-and-a-half months. Abdomen not notably large. Six weeks later pregnancy decided, abdomen being raised by a rounded tumour. Patient soon became delirious, and died one day later. *Post-mortem*: Uterus soft, loose, 6 in. long from internal os to fundus. Cervix like the glans penis in shape, 1 in. long, forming a rounded, cylindrical enlargement terminating on side of uterus by a rather

considerable contraction. There was a layer of concrete pus between placenta and uterus, which could be taken up in yellowish flakes. Placenta feebly adherent. Dance thought the softness of the uterus, the peculiar shape of the cervix, the puriform concretions, and the inflammation of the decidua caused the vomiting.

*Case* 104. DANCE, *loc. cit.*

Æt. 20, single. Should have menstruated November 20; did not. Admitted December 30. Headache, nausea, vomiting. Pregnancy suspected. Vomiting worse, February 11 and 12. Exhaustion alarming, February 12. Death. *Post-mortem*: Uterus just rising above pelvis, 5½ in. long, 3 in. wide; feels loose, like half-filled bladder; walls scarcely a line thick, very soft, with sanguineous engorgement, giving no violet tint, extending even to cellulosities of the decidua. Trunk of fœtus bent on itself. Placenta on left inferior surface; fœtus three months' size. Cervix like a small nipple, regular in outline, 3 lines long.

*Case* 105. JAGGARD, *Amer. Gyn. Trans.*, vol. xiv., p. 448; previously reported in *Amer. Journ. of Obstet.*, 1888.

Mrs. D., æt. 29. Frequent losses of blood in this and also in former pregnancies; the bleeding could not be arrested. Slight bilateral tear of vaginal portion. At five months severe sickness set in. After a week's ineffectual treatment abortion induced. Decidua found to be unusually hypertrophied. Considered by reporter to be a case of 'endometritis gravidarum.' Vomiting began first 16th–18th week after fundus had risen into abdominal cavity.

[Jaggard discusses at considerable length the question as to connection between endometritis and presence of vomiting. The patient had, previously to the pregnancy, had discharges of sero-sanguinolent character, with minute blood-clots and shreds of decidua. The details of the case point to an abnormal

condition of the endometrium, causing hydrorrhœa as well as hæmorrhage.—G. H.]

*Case* 106. Horwitz, *loc. cit.*

(Case 3 of his series.) Primipara. Suffered while single from dysmenorrhœa; vomiting set in three months after beginning of pregnancy; a little later rigors and elevation of temperature, with severe abdominal pain, occurred, and the vomiting became intense. Examination made. Cervix uteri far back to the left and difficult to reach, uterus as large as at four months (patient being three months pregnant), perimetric exudation of rather firm consistence felt at the left side, uterus absolutely immovable and very sensitive. Leeches, cold compresses, and ice externally; hot vaginal injections, mercury, and nutritive enemata employed. After four days sickness less; cure, delivery at term.

*Case* 107. Horwitz, *loc. cit.*

(Case 6 of his series.) Æt. 30. Multipara; has had four children. Since last confinement suffered from painful and profuse menstruation; menstruation ceased, and vomiting assuming severe form soon set in. When seen by Horwitz great emaciation, severe pain in hypogastrium, especially left side, intensified by movement and by vomiting. Patient sustained for last three weeks by enemata. On examination, reddish mucus in vagina; portio vaginalis short, thick, soft, displaced to the back more than normal; os admits finger; the whole uterus is considerably enlarged, and in a state of ante- and right-lateral version; fundus two fingers' breadth above pubes; an irregular tumour, sensitive to touch, is felt on left side of pelvis, behind uterus. It was concluded (erroneously) that extra-uterine pregnancy was present. Operative treatment by laparotomy was considered unadvisable; later on, however, laparotomy was performed by another practitioner, and gave rise to a fatal hæmorrhage.

['The irregular tumour' was probably cellulitic. —G. H.]

## *GROUP E. MISCELLANEOUS CASES*[1]

| Number of case | Authority | Résumé of facts |
|---|---|---|
| 108 | Tarnier | Cure by tampon (belladonna and glycerine on tampon) |
| 109 | Depaul | Impervious internal os. Cure by incisions |
| 110 | Clay | Slightest touch of os produced vomiting. Cure by complete rest |
| 111 | Wiesel | Sickness associated with great constipation of bowels |
| 112 | Fischel | Impacted fæces in colon |
| 113 | Clerau | Sickness relieved by application of leeches to cervix |
| 114 | Cazeaux | Relief day following a 'consultation.' Diarrhœa occurring. (?) Relief due to manipulation |
| 115 | Chazan | After an examination under chloroform no more vomiting (*see* report of Case) |
| 116 | Pugliatti | Fœtus dead; vomiting persisted; cystic obliterated conglomerations at junction of cervix and vagina (*see* Case) |

*Case* 108. TARNIER, *Journ. de Méd. et de Chir. Prat.*, June, 1875. Case related by Marcou (*see* Pugliatti, p. 442).

Patient pluripara. At third month attacked with severe and alarming vomiting. Various measures tried and found useless. At last a large tampon was introduced into the vagina and allowed to remain. The vomiting ceased, and did not reappear. A little glycerine and belladonna was placed on the tampon; but Tarnier thought the cure depended on the mechanical action of the tampon, and attached little importance to the medicament.

*Case* 109. DEPAUL, *Anquetin's Essay, loc. cit.*

(This is a case, quoted by Anquetin, interesting in association with the question raised by Copeman's cases.)

In a case of vomiting abortion was decided on at seventh month. There was found a complete obliteration of the

[1] Some further cases by Flaischlen and Schülein later on, p. 92.

internal orifice of the cervix. Incisions were practised ; the labour brought on. Child alive.

*Case* 110. Clay, *Gaz. Hebdom.*, 1857.

Patient, æt. 34, had had five abortions. Sixth pregnancy at age of 40. Vomiting set in at seventh month. Clay determined later on to induce labour. Introducing finger, he found the uterine cervix so sensitive that slightest touch produced vomiting. Finding this to be the case, he resolved to try effect of rest. Patient was kept in bed, and in twenty-four hours could take food. Went to full time. Sickness returned always when she stood upright.

[The very sensitive state of the uterine cervix at seven months of pregnancy—so much so that the slightest touch produced vomiting—is a remarkable feature in this case, and the effect of rest, which presumably allowed more easily of necessary expansion, is very interesting and suggestive.—G. H.]

*Case* 111. Wiesel, *Wien. Med. Pr.*, No. 29, 1889.

Patient a primipara, æt. 20. Complaints of pain in abdomen and vomiting. Stomach retained nothing; great emaciation. Bowels much confined, urine very scanty (during third month). Many remedies ; no effect. Bowels relieved finally by large injections of warm milk.

*Case* 112. Fischel, *Rép. Universel d'Obstétrique et de Gynécologie*, 1886, p. 24.

Patient, 7-para, at four months of pregnancy attacked with severe vomiting resisting chloral and morphia. There was found a tumour in form of a cord traversing transversely the epigastrium, simulating a carcinoma of great curvature of stomach or epiploon ; in right iliac fossa another cylindrical tumour, softish, evidently ascending colon with fæcal contents. Patient relieved by suitable purgatives.

*Case* 113. CLERAN, *Gaz. Hebd.*, i., p. 253 (Anquetin).

Patient a multipara. Vomiting set in third month. Remedies no avail for fifteen days, when twelve leeches were applied to the neck of the uterus, and two hours after soup was taken. No further trouble. Delivery at term of twins.

*Case* 114. CAZEAUX, *Anquetin, loc. cit.*

Patient pregnant two-and-a-half months. Vomiting set in a fortnight after commencement; the slightest spoonful of liquid produced it. Dubois and Chomel, consulted, gave hopeless prognosis. Nevertheless, the day after the consultation the patient was taken with a 'dévoiement' very intense. The vomiting at once ceased.

[Was the relief due to manipulation?—G. H.]

*Case* 115. CHAZAN, *Cent. f. Gynäk.*, No. 2, 1887.

Patient pregnant for fourth time. Vomiting set in during third month. No uterine anomaly detected. Patient apparently desirous of seeing an end of the pregnancy. After a while a further examination under chloroform made, as treatment had no result. There was no more vomiting after this examination.

[Pugliatti, who quotes this case, remarks: 'Why did the vomiting cease? Was it not because the patient believed the ovum had been taken away?' Another solution may be suggested—viz., that the manipulations made use of during the examination released the uterus from an impacted condition, and so relieved the vomiting.—G. H.]

*Case* 116. PUGLIATTI, *loc. cit.*

M. M., æt. 37, 5-para. Vomiting frequent and severe, but not 'incoercible.' At four months hysterical convulsions. Movements of child then felt; continued two weeks, then ceased. Vomiting now became intense. First seen by

writer when about five months pregnant. Condition one of great suffering. Uterus in slight lateral left obliquity; shape spheroidal; fundus in middle zone, below umbilicus. No fœtal sound to be heard. Cervix painful to touch, swollen, soft, in inferior third; form conical, base corresponding to os externum; two lips much divergent. Much mucus present in cervix. Red-bluish ovules of Naboth irregularly scattered. Cystic obliterated conglomerations at junction of cervix and vagina interfere with passage of sound. Palliatives employed about ten days. Abortion then considered necessary; fœtus considered to be dead. Bougie introduced with difficulty, and retained some hours. A second bougie required following day, and much mucus expelled after first. Finally, birth of a mummified fœtus. Recovery of the mother.

This case proves (says Pugliatti) that death of the fœtus does not always cure the vomiting. As to the uterine affection, there was endocervicitis and cystic degeneration of mucous follicles. The use of the bougie led, he suggests, to rupture of the cysts, discharge of secretion, and relief of pressure on nerves.

Some further cases of interest, published while these pages are passing through the press, will be found at p. 89.

## Analysis of Cases Classed in Groups B, C, D, with the Object of Determining the Influence of Abnormalities of the Uterus in producing the Severe Vomiting of Pregnancy.

The cases related show existence of various uterine abnormalities. Those most frequently observed include:—(*a*) Uterine displacements, together with impaction, fixation, or detention of uterus in pelvis; (*b*) Rigidity, contraction, &c., of cervix and os uteri; (*c*) Inflammatory changes in or near uterus.

These abnormalities will now be considered in order of frequency.

On reading over the cases grouped under B, C, D, it will be observed that there is one condition noted as being present in a very large number of them, viz., *fixation* or *impaction of the uterus in the pelvis*, along with various kinds of displacement, varying in degree in different cases.

### *Presence of Fixation or Impaction in Conjunction with Retroposition of the Uterus. (Group B.)*

Out of the 19 cases of retroposition above mentioned in Group B, the uterus was stated to be 'incarcerated' in Moreau's case (29), and 'firmly packed in hollow of sacrum' in Campbell's case (38). In Stoltz's case (28) it was not exactly fixed in pelvis, but detained; it could be easily moved up,

but could not be retained in proper position, and abortion had to be induced. In Godson's case (33) the condition was the same, but by aid of a pessary the patient was cured. In G. Hewitt's case (31) the condition was similar, but great difficulty was experienced in sustaining the uterus; when kept in proper place the relief was complete. In Case 45 attempts to reduce displacement failed, which implies presence of a certain degree of impaction. In the other cases the uterus does not appear to have been impacted, at all events to such a degree as to prevent its elevation.

*Impaction, Incarceration, or Detention, in Association with Anteversion, &c., in the Cases above-mentioned in Group C.*

Particular attention to the details of these cases is required, as the occurrence of impaction of an anteflexed gravid uterus has been doubted. Impaction of the pregnant uterus in a state of anteversion or flexion is a prominent feature in many of the above cases. The following may be cited in proof of this statement:—

Stoltz's case (47) is a remarkable one. Efforts were made to push up the anteverted, impacted uterus. The moving of the uterus appeared to do good, and following day food was taken; but five days later condition irremediable, and death occurred. The sickness was evidently referable to the condition of the uterus.

Ulrich's case (48) equally striking. Many attempts were made to reduce dislocated uterus, all unsuccessful. Death. Post-mortem confirmed diagnosis:

flexion 3 in. from os. Ulrich considered the difficulty in expansion due to the flexion was the cause of the vomiting.

In Munro's case (52) uterus was acutely flexed and quite fixed. Attempts made to push the uterus up failed. Abortion was induced.

In Copeman's case (58) the uterus was much anteverted and low down. Reduction by pressure was effected; it is not stated that much force was required. No dilatation of os in this case, but cure of sickness by elevating uterus.

In Copeman's case (59), anteversion, and rectification by pressure, with relief. Slight dilatation once next day. Cure.

In Graily Hewitt's case (70), uterus found anteflexed and jammed obliquely in pelvis at six months; thought to be due to cellulitis after former labour. Immediate rectification not attempted; miscarriage at seven months.

In Graily Hewitt's case (73), anteflexed uterus jammed behind pubes; pregnant three months. Continuous dorsal position successful in curing sickness.

In Horwitz's case (77), impaction of anteverted uterus. Redression very difficult, giving much pain.

In Horwitz's case (78), impaction of decidedly anteverted uterus. Reduction very difficult. Death.

In Horwitz's case (79), uterus anteflexed, low down, impaction apparently irreducible. Artificial abortion; death (complication of gastric ulceration).

In Horwitz's case (80) uterus was anteverted, impacted. Reduced with great difficulty, giving great pain. Tampons. Artificial abortion. Recovery.

In Horwitz's case (82) there was impaction very decided; fundus bent forwards, and to right side;

anteflexion; impaction. Pain on attempting correction. Dilatation. Finally, artificial abortion. Recovery.

In Horwitz's case (83), marked anteversion, vaginal portion very thick. Attempt to redress position gives great pain. Dilatation ineffectual. Artificial abortion. Death.

In Haslett's case (84), uterus anteflexed, impaction. Attempts at reduction failed. Artificial abortion. Recovery.

In Davis's case (85), uterus anteflexed; fundus tender, enlarged, firmly fixed at lower level than os. Uterus pushed up by fingers; position maintained by cradle pessary. Cure.

In Campbell's case (86), uterus anteverted, compressing bladder much. Reduction, with assistance of genu-pectoral position. Pessary applied.

In Graily Hewitt's case (87), uterus hard and painful to touch, resistance to pressure considerable, sensation of numbness. Relief from pressure of body of uterus upwards; return of sickness in night, re-descent of uterus. Air-ball pessary used with good effect for twenty-four hours. Sickness found to be controllable by assisting ascent by occasional pressure from vagina. Partial recurrence about a week later; uterus now assumed an oblique position, fundus to left and cervix to right (apparently finding more room in oblique diameter). Air-ball pessary again used for four hours. Pregnancy natural afterwards.

In Doe's case (88), uterus markedly anteverted, pressing against pubes. Could be raised up out of pelvis, but *fell back directly upon removal of finger*. Treated by use of vaginal tampons. Cure. In a former pregnancy there had been vomiting, less severe, which

yielded suddenly and completely after physician by chance elevated the uterus.

In Veatch's case (90), extreme anteversion. Patient refused attempt at replacement. Abortion (not provoked) occurred a month later. Death.

In Smith's case (95), anteversion and anteflexion present, but not more than he had observed in other cases where distressing symptoms present in this case were lacking. No impaction noted. Great emaciation. Treatment unavailing. Abortion induced. Cure. When abortion induced, six weeks after first noted, the displacement previously referred to had greatly lessened.

In Kingman's case (97), uterus low in pelvis; anteflexion of body and cervix, posterior lip flattened against the floor of pelvis, anterior lip elongated, and projecting in vaginal axis. In knee and chest positions uterus dropped forward above the brim, and was retained there by a light pessary (for further treatment, *see* case). In this case the uterine body was readily moved from one situation to another, according to action of gravity.

In Guéniot's case (98) uterus low down; its cervix, strongly flexed, was as it were crushed by the weight of the body against the perineum. The cervix was disengaged, patient placed in dorsal position, with pelvis raised. Cure quickly.

In Graily Hewitt's case (100) patient was successfully treated for severe sickness in two previous pregnancies. Again pregnant after six years; again suffers from severe sickness. Anteflexion much intensified by upright position, causing intense sickness and faintness; hard effusion in angle of flexion. Elevation of fundus and use of air-ball pessary entirely relieved her.

In as many as 23 cases of severe vomiting, therefore, anteversion or flexion were associated with marked impaction, or incarceration, or detention, and consequent obstruction to the elevation of the body of the uterus in the pelvis. Jaggard's case also, *probably* of same kind.

The factor of numerical importance next to be considered in explanation of the vomiting observed in the above cases is

*Induration, Thickening, or Contraction of Cervix uteri in Groups of Cases marked C and D.*

In a considerable number of the cases above related there was present an abnormal condition of the cervix uteri, evident to the touch in many of them, and consisting in presence of *hardness*, *swelling*, and *thickening of the vaginal portion of the cervix uteri*, or contraction and rigidity of the cervix, evident on attempting to dilate the cervical canal.

In Dance's first case (103), in which there was a post-mortem examination, it is stated the cervix was like the glans penis in shape, 1 in. long, forming 'a rounded, cylindrical enlargement, terminating in the side of the uterus by a rather considerable contraction.' There was also pus between decidua and uterus.

In Henry Bennet's case (50), cervix voluminous, indurated, especially anterior lip. Inferior lip and circumference of os presents a fungous, bleeding surface.

In Dr. Copeman's case (60) the posterior lip was found to be hard and unyielding; os would only admit urethral bougie. Gradual dilatation effected. After two days' rest, relief.

In Duke's case (64), tissues of os very hard and cartilaginous. Digital dilatation. Cure.

In Gooch's case (65), digital dilatation, escape of pus from uterus. Cure. (?) Induration.

In Fry's case (68), cervix, and especially posterior lip, hard and gristly. Long, narrow throat-forceps used with some force, to dilate canal. Relief immediate.

In Graily Hewitt's case (71), great congestion, hypertrophy, with anteflexion. Pregnancy after some months' treatment, and an early abortion. Shortly, another pregnancy; severe sickness; much increase in size of cervix, which was thick and very firm. Uterus anteverted. Copeman's dilatation proposed, sickness being severe. Dilatation, very difficult, effected by two-bladed steel dilator to extent of diameter of first joint of little finger; with intermissions, dilatation occupied eight hours. Relief next day, abortion in two days. Death a fortnight later.

In Horwitz's case (78), cervix rather hard. Anteversion.

In Horwitz's case (79), portio vaginalis much elongated, thickened; gastritis.

In Horwitz's case (81), cervix much thickened, though softened.

In Horwitz's case (82), portio vaginalis rather hard, conical. Copeman's plan; slight effect only.

In Graily Hewitt's case (87), lower segment of uterus hard to touch, swollen, and tender; impaction of uterus in pelvis. Concurrently, most severe sickness. Relief by upward pressure; recurrence later on, &c. The impaction, which was a great feature in this case, was always accompanied by hardness and swelling of the anterior lower part of uterus,

also by a curious, easily-felt pulsation of uterine artery.

In Doe's case (88), cervix firm and unyielding.

In Meredith's case (96), anteflexion; cervix hard, its anterior lip thicker than the rest. Slight dilatation employed; little effect. Later on, after employment of sponge-tent twice, dilatation had good effect. Delivery at nearly full term.

In Kingman's case (97), uterus low; anteflexion of body and cervix, the posterior lip being flattened against the floor of pelvis, the anterior lip elevated, and projecting in axis of vaginal outlet. In knee and chest position body of uterus moved upwards above brim.

In Guéniot's case (98), uterus low; its cervix, strongly flexed, was as it were crushed by weight of the body against the perineum. Relief by placing patient in dorsal position and raising pelvis.

Thus, it will be seen that in 10 cases there was evident hardness of the cervix, and in 2 of them the resistance to dilatation was found to be very great indeed. In Dance's case there seems to have been a contraction (? flexion) at junction of body and cervix. In 2 other cases, evident flattening of cervix against pelvic floor was observed.

The factor next in order of numerical importance is

*Presence of Inflammatory Changes in or near Uterus, in some Cases with Fixation of the Uterus* (*Group D*).

The most marked of these cases are arranged in Group D.

In Chomel's case pus was found on decidua.

In Dance's first case (103) there was concrete

pus between placenta and uterus; placenta fully adherent; also peculiar state of cervix.

In Dance's second case (104), uterine walls very thin, soft, and in a state of sanguineous engorgement. Cervix like a small nipple, short.

In Gooch's case (65), escape of much offensive discharge on dilating cervix.

In Horwitz's third case (106) there was perimetric exudation, rather firm, at left side of uterus, following rigors. Uterus fixed, sensitive.

In Horwitz's sixth case (107), an irregular tumour [probably cellulitic.—G. H.], sensitive to touch, to left, behind uterus. Thought (erroneously) to be extra-uterine pregnancy.

In Jaggard's case (105), decidua unusually hypertrophied; reported as a case of endometritis gravidarum. Artificial abortion induced at five months.

Horwitz's opinion as to the presence of parenchymatous inflammation of the uterine walls in cases of severe pregnancy-vomiting has been already alluded to (see p. 44). In several of his cases the walls were, as he considered, unduly thickened, and the uterus changed as regards its position; the change of position he attributed to the parenchymatous inflammation of the walls. But he himself says: 'Probably it commences before the beginning of pregnancy, for we can scarcely believe that in so short a time the inflammatory action could produce such marked effects.' His own explanation, therefore, he finds inadequate. The true explanation seems to be, that the condition of the cervical tissues previous to pregnancy is such as to interfere with uterine expansion; hence quasi-inflammation, swelling, &c., of those tissues when pregnancy supervenes.

In a certain number of the cases above reported it is noted that tenderness of the os, or of the cervix, or of the lower part of the uterine body, together with swelling of the part involved, was present, and this localised tenderness and swelling evidently points to quasi-inflammatory or inflammatory action. This condition was notably present in Cases 87 and 100. These swellings come and go, often quickly, as I have had occasion to note. Their presence is coincident with increase of the vomiting, and the vomiting often disappears when the body of the uterus is pushed upwards; leading to the inference that the rectification of the position of the uterus relieves the tension and lessens the swelling.

Further remarks on this subject will be found later on, in discussing the question as to metritis and its influence and interference with uterine expansion.

## Effects on the Vomiting produced by Release of Existing Incarceration of Uterus, or by Reduction of Displacement.

I proceed, in the next place, to inquire how far the effects of the remedies employed give evidence bearing on the question as to the pathology of the vomiting in the cases related.

### (*a*). *In Cases where the Uterus was Retroflexed or Retroverted* (*Group B*).

The results obtained in these 19 cases were most striking, for when the uterus was restored to its position, and maintained in it, the cure of the sickness was prompt and immediate. In one case attempts to replace the uterus were not successful; but even in this case there will be found evidence that the procedure was beneficial. In one case the reduction was not effectual in curing the sickness. In one the reduction was effected, but was not maintainable. In two cases it was not attempted. In one, further history not known. The other cases were all cured of the sickness by treatment directed to restoration of uterus to a more normal position.

### (*b*). *In Cases of Anteflexion or Anteversion* (*Group C*).

The following are marked instances of the beneficial effect of elevating the fundus, and thus reducing

the flexion, in cases of anteversion or flexion :—Stoltz's interesting case (47), where, had first successful attempts been persevered in, the patient's life would probably have been saved. Copeman (his fourth) gives a remarkable case (58) where severe sickness and intense neuralgia were cured by pushing up the body of an extremely anteverted uterus at five months. In this case no dilatation of the os was performed. In another of Copeman's cases (59) anteversion was similarly relieved by manipulation, and patient much better, but following day os was slightly dilated. Thus, in 3 out of the 6 cases given by Copeman mere elevation of the uterus and reduction of displacement cured the sickness. In 2 of these 3 the relief obtained was unmistakably the result of replacement.

Robert Davis's case (85) is a very important one: uterus anteflexed, firmly fixed, fundus low down; was forcibly pushed up by fingers in vagina, assisted by other hand above pubes. Vomiting at once ceased. Cradle pessary used to sustain uterus. Cure. Similar, but less severe, symptoms in two subsequent pregnancies; similar successful treatment.

In case by Campbell (86), reduction of similar displacement by pressure and genu-pectoral position; good results.

In case by Graily Hewitt (87), uterus was anteflexed and a little to left, very tender. Treatment, reduction by pressure of fingers. Immediate relief. Return of symptoms; use of air-ball pessary. Sickness quite under control by slight occasional help to elevation of body of uterus.

Case by Dr. Doe (88), where at three months uterus, much anteflexed, easily raised by pressure

but falling back directly pressure withdrawn. In a former pregnancy, sickness had suddenly yielded after accidental raising of fundus by attending physician. Dr. Doe now used vaginal tampons to keep uterus in place, and whenever the uterus became anteverted and prolapsed the nausea returned. Result favourable.

In case by De Voe (91), manipulative reduction of anteflexion. Cure.

Kingman's case (97) was a complicated one: uterus low down, body and cervix anteflexed, posterior lip flattened against pelvic floor. Treated by packing vagina and by a pessary. Apparent benefit, but rheumatism, severe constipation, and primary weakness had to be encountered. Result unfavourable.

In Guéniot's case (98), uterus low down, its cervix strongly flexed, and crushed by weight of the body against perineum. By disengaging the cervix, by aid of elevating pelvis and lowering trunk, patient quickly cured. Delivery at term.

Another of Guéniot's cases was a good instance of cure by Gariel pessary.

In G. Hewitt's case (100), patient treated for severe vomiting in three pregnancies by use of air-ball pessary, going to full term in each, with complete relief of sickness. One miscarriage previously.

### Effects of Dilatation of Os Uteri by Copeman's Procedure in Relieving Sickness when Associated with Rigidity, &c., of Cervix.

On looking over the Table of Cases, Group C, it is observable that several of the cases were treated by dilatation of the os or cervix. This procedure was introduced by Dr. Copeman.

A survey of the cases related shows that the dilatation operation has had a beneficial effect in several cases; also, that when the cervix is dilated through its whole length, so as to include the internal os, the results are more decisively effective. In some cases mentioned above, including Dr. Copeman's first case, there is no note as to condition of the cervix, or as to presence of displacement of the uterus; it is only stated that Copeman's procedure was adopted and the vomiting relieved.

It appears that in 14 cases Copeman's procedure was the only treatment adopted. There were, besides, 4 cases in which it was adopted, but in conjunction with other procedures.

Rigidity of the cervix uteri has attracted increased attention since it has become known that dilatation of the cervix is frequently successful in curing the severe vomiting of pregnancy. Considerable light is thrown on the etiology of severe pregnancy-vomiting by the series of facts accumulated since Copeman's method of treatment has been em-

ployed. Dr. Copeman, who was the first to employ it, hit upon the idea of dilating the cervix in order to cure sickness of pregnancy quite accidentally, his object having been, in the first case in which he tried it (see Case 55), to bring about abortion. The mere dilatation of the cervix with the finger, however, arrested the vomiting, and the abortion was not required. Dr. Copeman afterwards employed the procedure curatively, and with success, in several instances. His example was followed by others, and with good results, as shown by the cases above related. He did not profess to explain the *modus operandi* of the cure. In his second case, Dr. Copeman found the uterus anteverted so as to allow the head to be felt below the level of the os uteri. He raised the body of the uterus by gentle pressure out of the pelvis, and the vomiting at once disappeared. In this case no dilatation was performed, yet the patient was cured.

Dr. Copeman's procedure, the intention of which is to dilate the os and cervix, has an important incidental effect, which I pointed out in a communication to the *British Medical Journal*, May 29, 1875, just after his first cases were published. In cases where anteflexion or version is present in association with severe pregnancy-vomiting, the os is far back, and in order to effect dilatation the os and cervix have to be drawn forwards and downwards; which manœuvre has, I argued, necessarily the effect of rectifying to a more or less complete degree any existing anteversion or flexion. Consequently, in a given case, it may be that the operation which is curative as regards the sickness is the rectification of the position of the uterus more than the dilatation

which in Copeman's procedure follows upon it. Such rectification will, as I believe, have the effect of removing or lessening the cramped, confined condition of the cervix. Mere restitution will not, however, always effect the necessary liberation of the tissues of the cervix from compression, for in a case related (Case 71) the induration was so great that dilatation proved necessary after rectification of position had been pretty well effected. Marcou (*Thèse de Paris*, 1878), who has given a valuable critique on Copeman's treatment, says that the explanation given by Graily Hewitt as to the manner of acting of Copeman's procedure seems to be near the truth. Compression of the tissues of the cervix which result from flexion occasion the irritation, and he believes, with Hewitt, that in Copeman's, Tarnier's, and other like cases, the benefit resulted from remedying of uterine deviations overlooked or inaccessible. Marcou also considers that dilatation implies replacement of the uterus, the os being thereby brought into the axis of uterus, while at the same moment the other extremity of the uterus is moved into a better position.

## Comparison of the Curative Effects of the Various Methods of Treatment Adopted in the Cases above Related and Summarised.

There are two procedures, each of which was employed in a considerable number of the cases, with the most marked evidences of success in the removal of the severe vomiting:—1. Reposition of the displaced uterus, or elevation of the body of the uterus into a more favourable position. 2. Dilatation of the os and cervix uteri according to the method introduced by Copeman.

1. Effects of reposition of displaced uterus:—

*a*. In 19 cases of retroflexion or retroversion (Group B) the success of the elevation of the body of the uterus by manipulation was very great, as will be seen from the following analysis:—

| | |
|---|---|
| Reduction effected and maintained . . | 13 [1] |
| Reduction not possible; artificial abortion . | 2 |
| Reduction not tried; artificial abortion . | 2 |
| Treatment by rest, &c. . . . . | 1 [2] |
| Full particulars not known . . . . | 1 |
| | 19 |

Particulars in G. Hewitt's (31), Greslou's (45), and Pugliatti's (46) cases very important. In Stoltz's case (28) the replacement was very successful in

[1] Vomiting cured in 12 (92 per cent.). [2] Cure of vomiting.

regard to the vomiting, but uterus could not be maintained in position; hence failure, and necessity for induction of abortion.

*b.* In cases (Group C) where uterus was (probably in all of the cases in this Group) in a state of anteversion or anteflexion :—

Of the cases coming under this category, and where the treatment consisted in *elevating the fundus uteri*, either by *actual manipulation* or by *other measures*, the following are the results :—

There are 12 cases where mechanical or *manipulative elevation* was employed. Result :—

In 10 cases, complete cure.
„ 1 case abortion occurred, and cure of sickness.
„ 1 case, death; sickness not cured.

12

There are 6 cases where elevation of uterus was favoured by *careful general treatment, horizontal position, rest, &c.* Result :—Cure in all 6 cases.

By contrast, it may be pointed out that there were 10 cases (in Group C) in which marked impaction was present, but in which elevation was not, or could not, be carried out, or was imperfectly done. Result in the 10 cases :—

In 4 cases, death.
„ 4 cases, cure by artificial abortion.
„ 1 case, death after artificial abortion.
„ 1 case, cure by natural abortion.

10

2. There were 18 cases, excluding Case 59, in which Copeman's dilatation was practised. In one

only of these was the uterus retroposed, the others being cases of anteposition. Result:—

In 14 cases, sickness cured; in 1 case, relieved.

In 1 case, abortion followed the operation; cure of sickness; death from septicæmia.

[In 6 of the 18 cases rigidity of cervix was noted.]

The results of various methods of treatment in the cases above-mentioned and tabulated may now be compared.

Two methods of treatment were practised on a sufficient number of cases to be contrasted, viz.:—

*a*. Treatment by replacement. *b*. Treatment by dilatation of the os and cervix uteri.

*a*. Treatment by replacement, retroposition cases: 13 cases, 12 cures. Treatment by replacement, anteposition cases: 12 cases, 10 cures.[1]

*b*. Treatment by Copeman's procedure, in 17 anteposition cases: 17 cases, 14 cures.

Of course, the retroposition cases occupy a place by themselves. In one case of retroposition (Case 43) the procedure was adopted, with relief of sickness; but artificial abortion was adopted, so that result is uncertain. But we have 12 cases of anteversion or flexion treated by replacement, which may be contrasted with 18 similar cases treated by Copeman's procedure. It is curious to find that nearly the same results were observed in the two sets of cases, being represented by the fractions $\frac{10}{12}$ and $\frac{14}{18}$, and favourable results being obtained; therefore, in both classes of cases, practically almost

[1] Under head *a* might be added 6 other anteposition cases in which no manipulative treatment was employed, but absolute rest maintained; in all 6, cure followed.

identical. So far as these cases go, they favour the conclusion that manual elevation of the fundus of a gravid, anteposed uterus, and dilatation of the os uteri, are both of them procedures capable of affording relief when severe vomiting is present.

It has been already suggested that Copeman's procedure is efficacious in regard to the cure of the vomiting *because* it has the effect (unintentional) of releasing the uterus from compression and incarceration; this explanation is, probably, the true one, and is consistent with the results above-mentioned.

In the tabular statement of cases in Group C, it will be observed that in the larger number of cases where Copeman's procedure was adopted nothing is said either as to presence of induration or rigidity of the os; and in most cases, also, there is no mention of presence or absence of displacement. It is difficult, therefore, to say of most of these cases how far these were cases of indurated cervix relieved and cured by dilatation, or whether they were cases of displacement in which the rectification involved in the performance of the dilatation was the actual agent of cure.

## Actual Curative Potency respectively of Dilatation and of Replacement of Uterus.

The facts obtainable demonstrate the potency of dilatation of the cervix; they also demonstrate the efficacy of reposition of the uterus. It seems probable that the effect actually produced is, in either case, a release from pressure on nerves, which pressure, in all probability, is the specific irritation which sets up the vomiting. To unbend the uterus by raising

the fundus releases the tissues from compression, and is practically identical with straightening of the cervix, which is, necessarily, involved in the process of dilatation. These considerations explain why the success obtained was equally great whether the one or the other procedure was had recourse to.

From these considerations it follows that Copeman's procedure owes its efficacy—(1) to accidental reposition of the uterus; or (2) to the unbending and straightening of the cervix involved in the process; or (3) to the direct stretching of contracted tissue; or (4) to a combination of 1, 2, and 3.

There are some cases on record in which Copeman's procedure had no effect; in some, nothing short of dilatation of the whole cervical canal was of service; in others, a very slight degree of dilatation sufficed.

### Sudden Relief from Vomiting, occurring Spontaneously, or immediately following some Operative Manipulation, &c.

The curiously sudden and apparently inexplicable manner in which entire relief from the sickness is sometimes obtained by the afflicted patient, and which has been noted in not a few cases, deserves careful attention; and there is good reason for the belief that there is nothing capricious about it, as would probably be suggested by some. This is paralleled by what happens when pregnancy-vomiting ceases abruptly at the period of quickening; and this is no doubt due to suddenly-occurring relief from elevation of the fundus and escape from incarceration.

Another very striking fact is, that a very slight manipulation, or a slight application to the os, has sometimes brought about a sudden and bright change in cases which have, a few minutes before, been looked on as most serious. In such instances, it would seem as if the benefit conferred followed what might have been considered a very insufficient cause. Cases 113, 114, and 115 may be referred to as being, probably, instances of this kind.

One of the most recent works on the subject of the severe vomiting of pregnancy is that by Professor Pugliatti of Novara.[1] A very complete and admirable historical account of the subject down to present date constitutes the first part of the essay. A second part contains clinical observations and new results respecting the etiology and therapeutics of incoercible vomiting. He speaks hopefully as to the recent progress made in the knowledge of the pathology of the subject, and as to the probability of more definite solutions of the difficulties of the question being arrived at by researches of careful observers. Pugliatti discusses the various explanations that have been given, particularly the views of Graily Hewitt and the procedure introduced by Copeman for the relief of the uncontrollable vomiting of pregnancy.

As regards his own observations, Pugliatti invites attention to alterations in the condition of the secretions of the cervix uteri in cases of severe vomiting. The observations of Fritsch have shown that the glands of the cervix are enormously hypertrophied during pregnancy. Pugliatti considers that altered conditions of this secretion may lead to obstruction

[1] *Il Morgagni*, Naples and Milan, 1889.

to its escape from the cervix, and possibly, he surmises, occasion the severe vomiting.

Pugliatti reports six cases which presented facts bearing on this question (see two of these related as cases 99 and 116). The various pathological conditions of the cervix uteri may cause obstruction to escape of the uterine secretions, viz., stenosis of the cervix, polypus of cervix, cystic degeneration of mucous follicles, also uterine displacements, retained uterine secretion, and presence of fæces in rectum. The manner in which these pathological conditions act is, he believes, by producing pressure on the fibres of the sympathetic nerves, which in a reflex manner excite the vomiting.

Pugliatti's observations are most valuable, as confirmatory of the idea of the *locale* of the lesion in cases of severe vomiting of pregnancy being the cervix uteri. No doubt also the tension and pressure at this situation would be increased by distension of the cervical glands with secretion. Such distension would be likely to be relieved by straightening of the cervical canal, or by dilating the canal, or by any other mechanical procedure calculated to produce rectification of uterine position. In some of Pugliatti's cases benefit resulted from removal of cervical secretion by a straight sound carrying cotton-wool, and he attaches much importance to the effect of this procedure. It may be, however, that the insertion of the sound was the efficient agent, and the rectification of the position of the uterus the actual curative influence.

Some very important and interesting facts bearing on this question as to the effect of manipulations of the uterus in relieving the vomiting will be found

in the report of a meeting of the Gesellschaft für Geburtsh. und Gyn., held in Berlin, March 28, 1890, which has only come under my notice while these pages are going through the press. On that occasion Flaischlen read a paper directing attention more particularly to cases of hyperemesis of pregnancy in which the uterus is in a normal position.

*Cases* 116 and 117. FLAISCHLEN.[1]

Flaischlen reports two cases of severe vomiting, in both of which, curiously enough, twins were present. In the first case the uterus is stated to have been 'normally anteflexed' and strikingly large. Artificial abortion was produced. Result good. Decidua much thickened and hypertrophied.

Case 117.—The second was a complex case. Patient moribund in seventh month of gestation from long-continued vomiting. Had undergone operation for double movable kidney at very early period of pregnancy. Artificial abortion induced as a hopeless expedient. Death. Excessive quantity of liquor amnii present. Stenosis of intestine.

Flaischlen also reports three cases by Paul Ruge, particulars of which are interesting, two of the patients dying of collapse, one without artificial abortion and one after artificial abortion, a third saved by artificial abortion. Of the five cases, three died; two were treated successfully by artificial abortion. Flaischlen discusses fully the question of the indications for induction of artificial abortion. In the discussion which followed Schülein related particulars of three cases, a *résumé* of which is as follows:

*Cases* 118, 119, 120. SCHÜLEIN, *loc. cit.*

Case 1.—Æt. 30. 2nd pregnancy, and uterus normal position; size abnormal. Sickness severe, unaffected by

[1] Zt. f. Geb. und Gyn., Band xix. Heft 2.

remedies; dilatation tried, no result. Uterine sound inserted, and ovum separated by its means as much as possible (in order to produce abortion). Next day patient much better, vomiting less, and wine could be retained on the stomach; other symptoms also mitigated. Three days later sound again used; abortion two days later.

Case 2.—Æt. 43, 11 para. Uterine position normal; size of uterus abnormal. In six weeks sickness exceedingly severe; condition most distressing. Uterine sound used as in previous case. Result, continuous improvement. Four days later, no labour pains being present, laminaria tent inserted. Day following, abortion. Patient had left movable kidney; later, cancer of pancreas.

Case 3.—Æt. 24. Married ¾ year. Endometritis before marriage (catarrh). Seen in third month of pregnancy. Internal remedies no effect on the severe sickness; dilatation no effect. In fourth month ovum loosened by means of sound. Improvement immediate. After repeated loosenings of ovum by sound the ovum was expelled in twelve days.

Schülein directs attention to the abnormally large size of the uterus in all three cases; also to the continuous improvement as regards the sickness by loosening of the ovum. This he explains by supposing the separation produced arrest of further increase in size of ovum. It does not appear that the membranes were ruptured in either of the three cases. He suggests that this method of inducing abortion is superior to that of use of tents.

Odebrecht, discussing the cases cited, suggests that the improvement following Schülein's use of the sound was produced by the manipulation of the endometrium, and that the irritation causing the vomiting was a neurosis of the endometric nervet-erminations.

Veit follows with expression of his belief in the connection between the uterus and the vomiting.

He considers that in the actual 'pernicious' cases of vomiting there are two objective signs: 1. Tenseness of the uterus; 2. Diminution in weight of body.

In the above three cases of Schülein, which deserve careful analysis, the uterus lay probably in anteposition, and the reporter doubtless also considered this position normal. Whether there was impaction or not is not stated.

In all the three cases there was undue size of the uterus. This is consistent with the idea that there was undue anteflexion. Schülein says the position was normal in the three cases. Yet impaction of a so-called 'normal anteflexion' may have been present, and consequently *delayed* elevation of the body of the uterus. On such a supposition only can we explain the benefit derived from use of the sound. To use the sound as described by Schülein, more or less straightening of the uterine canal would necessarily be produced. Hence the cases in question favour the theory that the benefit conferred was due to the straightening and rectification of position of the uterus by the 'manipulation' performed.

These cases of Schülein's are imperfect in one way, as Schülein, spite of the improvement produced by his manipulation, persisted in emptying the uterus. It is likely that, as occurred in a case above recorded by Pugliatti, where a sound was passed into the uterus, the sickness would not have returned, and in that case the proof of the efficacy of the procedure would have been more complete. The cases, curiously, nevertheless, corroborate what has been stated as to the effect of manipulations on the uterus in relieving pregnancy-vomiting.

## Results of Treatment by Cauterisation of Cervix, Use of Cocaine, &c.

*Cauterisation of the os uteri* was performed in some of the cases mentioned in Group C; in 11 cases in all. The number of unrecorded cases in which this treatment has been employed is probably considerable. In those cases above mentioned, particulars regarding the state of the uterus are generally wanting, and there is not much evidence to show that the cases stated to have been successfully treated by cauterisation were cases of really severe vomiting. In the 11 cases so treated 10 are stated to have been cured of the sickness. It is, however, possible, indeed probable, that the manipulation involved in the application of the caustic was the actual curative agent.[1]

*Applications of cocaine, iodine, etc., to the os uteri* are recorded as having had a beneficial result in some instances. The number of such cures recorded is small. No doubt cocaine locally applied might have a good effect from its sedative local action on the uterine nerves. Here again, however, the mechanical procedure may have been the efficient agent in giving relief.

[1] Bearing on the present question, the essay of Giordano (*Des vomissements incoercibles pendant la grossesse*, Paris, 1866) may be cited. Giordano was led by experience to employ cauterisation of *the interior of the cervix* as a means of inducing artificial abortion in cases where incoercible vomiting of pregnancy rendered abortion necessary. He found this an easy and certain method of inducing abortion. This would seem to indicate that cauterisation applied for the relief of sickness has the drawback of being *liable* at all events to bring about abortion.

## Uterine Vomiting in the Non-pregnant State.

The phenomena observed in reference to the occurrence of uterine vomiting *in non-pregnant women* are, I believe, of great importance in the explanation of the occurrence of the vomiting of pregnancy, both in the slight and in the more severe cases.

It is well known that very severe sickness is sometimes associated with the menstrual period, the sickness beginning with the period, and continuing often as long as the other menstrual phenomena. This severe menstrual vomiting is not seldom accompanied by pain more or less severe. In other words, dysmenorrhœa and severe vomiting are observed together in not a few cases.

It is also the fact that severe, and even dangerous, vomiting of a reflex character, not limited solely to the menstrual periods, is sometimes present in women who are the subjects of certain affections of the uterus. In the course of practice I have seen several such cases in which marked, severe, and reputedly incurable vomiting was traced to presence of changes in the uterus, and which were relieved, as a rule, so quickly by treating the uterine disorder, as to show that the vomiting was a reflex act dependent upon the uterine disorder and irritation. Chronic well-marked ante- or retro-flexions of the uterus are the conditions with which this severe vomiting seemed so strikingly associated in the non-pregnant state.

In 1886 I published particulars of 19 cases of severe sickness in *non*-pregnant women associated with marked degrees of uterine flexion.[1] In these cases the sickness was very severe or very intractable; in some of them the patient's state was alarming. That the vomiting in these cases was uterine in origin was borne out by the history and results of treatment observed, though it might probably be argued by some that the vomiting may have been due to ovarian instead of uterine irritation.

Further, the presence of uterine vomiting in a less severe form than in the instances just alluded to, is certainly much more common than usually admitted. I have known many cases where slight nausea or vomiting occurred in non-pregnant women on first rising in the morning, just in the same way as morning sickness is observed to occur in the case of a pregnant woman. These cases of uterine vomiting are generally spoken of as 'hysterical vomiting.' The term is faulty, as conveying the idea that there is no real substratum in these cases; which is very far from the truth, as the cases I have published show.

The condition of the cervix uteri affected by (1) flexion and (2) hardness and rigidity, both present together, appears from the facts which have been collected to offer a strong predisposition to the occurrence of severe vomiting should pregnancy occur, and the facts relating to the two classes of cases render it little doubtful that the cause of the sickness is, in the majority of cases, practically the same, viz., compression of nerves in the cervical tissue, associated with a bent, indurated condition of this part of the uterus, and the consequent loss of

[1] 'The Uterine Neuroses,' *Brit. Med. Journ.*, June and July, 1886.

the natural pliability and expansibility of the tissues. In the non-pregnant woman, however, the *degree* of the vomiting is rarely comparable with that observable in severe vomiting due to pregnancy. In both cases the upright position, slight exertions, or any circumstance calculated to increase compression of the pelvic contents, intensifies the vomiting.

Observation of the association of chronic flexions with vomiting led me, twenty years ago, to the conclusion that there is a parallelism between the vomiting present in pregnancy and the vomiting due to presence of chronic flexions. In 1871 I published a paper in which the opinion was expressed that the vomiting of pregnancy is connected with the presence of a flexed condition of the uterus.

## Relation subsisting between Chronic Metritis and Flexions of the Uterus in Cases of Severe Vomiting of Pregnancy.

Induration and condensation of the tissues of the cervix, especially in the part contiguous to the internal os uteri, are rather frequent in cases of chronic flexion in the non-pregnant state. Such induration and consolidation of the flexed cervix is due to the occurrence of metritis, or to a process of inflammatory character, at all events. The action of these changes in the production of impaction of the pregnant uterus, and as a cause of vomiting, is of great interest. The induration is not always present, but it occurs very frequently (see Table of Cases), and microscopic investigations show the presence of what has been termed 'sclerosis' of the tissues [1] in

[1] A very complete account of the microscopic changes in the uterine tissues as the result of chronic metritis was published by Jacobi in 1885, the previous researches of Leopold, de Sinéty, and others, being given, together with further original observations by the author, and a highly interesting, new explanation of the object and nature of the menstrual discharge.

The prominent lesions in the body or in the cervix in metritis are, in parous women, according to Jacobi (*Amer. Journ. of Obstet.*, 1885), enlargement and multiplication of blood-vessels, dilatations of lymphatics, proliferation of a scantily-nucleated cellular connective tissue, chiefly around both sets of nutrient canals, also occasional infiltration of parenchyma. Jacobi figures (*Amer. Journ. of Obst.*, 1885, p. 826, Figs. 15 and 16) a patch of sclerosis, the section being taken from the parenchyma underneath the peritoneum, exactly at the inferior angle of flexion, in a case of retroflexion. This peri-vascular sclerosis, it it

the indurated parts affected around the internal os uteri. The result is, that the healthy expansibility and elasticity of the structures in the part of the uterus so affected may be in this way more or less lost. This condition of the cervical canal is so marked in many cases of chronic flexion where the cervix has undergone the hardening process, that in order to straighten the canal a considerable effort may be required; and in such cases, when the sound is withdrawn the uterus rapidly assumes again its vicious shape: the flexion returns. We thus encounter in the state of the walls of the cervical canal, in cases of chronic metritis, a physical condition which is appreciably and distinctly calculated to present a difficulty in the process of uterine expansion, and give rise to impaction. When pregnancy occurs under normal circumstances, there at once happens a notable change in the tissues of the uterus: every part of the organ becomes swollen and increased in bulk, the blood-vessels increase notably in size, the cavity of the body of the uterus rapidly assumes an almost spherical shape; which implies, certainly, distension and extension of the structures around the internal os uteri as well as at other situations. As a result of the increase in dimension of the blood-vessels, there is an increase of pressure on the parts between the blood-vessels. This increase of pressure has no bad result in cases in which the

suggested, arises from nutritive exudation of an albuminous plasma, gradually causing a local development of connective tissue. Jacobi's microscopic observation was made in parous subjects; but, as this author states, it is possible that peri-vascular sclerosis exists in the cervix of sterile married women, and the observations mentioned of the behaviour of the anteflexed rigid uterus are strikingly confirmatory of this view.

tissues present no undue resistance to such increase in size. But it is inevitable that a mischievous degree of interference with proper growth may occur if the tissues at this situation are rigid, and do not easily permit of expansion. Sclerotic effusions around and between the blood-vessels offer resistance of this kind—resistance which will be increased by whatever tends to hinder the general globe-like swelling of the uterine body.

In a case in which the uterus is flexed at the beginning of the pregnancy, and the flexion is pronounced, the tissues of the cervix being rigid, and the uterus, as a whole, low down in the pelvis and in a condition of quasi-fixation, the degree of compression at the situation of the bend will be greater. No doubt there are many cases of flexion in which pregnancy occurs, and in which the uterus slowly expands, overcoming such rigidity as may be present at the os internum or its neighbourhood, in which, in spite of somewhat adverse circumstances, the uterus gets rid of its bent shape and the fundus rises up out of the pelvis. But when the difficulty in this way is very great, the fundus of the uterus fails to rise as it should do, and, inasmuch as the uterus is all the time becoming more and more bulky, it happens that the organ is unable to straighten itself, inasmuch as it appears to be too tightly packed in the pelvis to do so—by its unaided efforts, at least. When the uterus has become thus incarcerated in the pelvis, difficulties of all kinds are increased, and the degree of compression at the seat of the bend of the uterus becomes greater. Thus it is that the rigidity of cervical tissues associated with, and probably originated, in most cases, by, the flexion of the

uterus, interferes with healthy expansion during pregnancy, and that in some extreme cases the expansion and swelling of the uterus act in such a way as actually to hinder and prevent further proper expansion, by giving rise to incarceration.

Laceration of the cervix uteri during labour—a pathological condition shown to be of extreme importance by Emmet—is liable to lead to induration, condensation, and cicatrisation of the tissues affected by the laceration, and must be reckoned among the causes of rigidity of the cervix. It would only be liable to cause vomiting in patients who have already borne one or more children. Eversion of the lining of the cervix—a not uncommon result of the laceration—often acts as a further cause of irritation: abrasion and so-called ulcerations are liable to occur, often in association with more or less hypertrophic swelling of the lip or lips of the os uteri. So far as I am able to judge, however, laceration of the os uteri is not markedly associated with production of severe vomiting of pregnancy.

*Unusual Softness of the Cervix in some Cases of Severe Vomiting of Pregnancy.*—Induration and rigidity of the cervix are not present—in a marked degree at all events—in all cases of severe vomiting. There is a class of cases where there is anteflexion to a marked degree, but induration, contraction, and rigidity of the cervical tissues are absent, or not easily appreciable; and, in fact, there are cases in which the uterus is preternaturally soft and flexible, falling readily into a state of marked flexion when the patient is upright, but easily pushed upwards, or even easily and spontaneously rising upwards, when the patient is recumbent. On looking

over the list of cases detailed in Groups C and D, such cases will be found described. Two of my own cases—87 and 100—are illustrations of this occurrence. Jaggard's case (Case 101) is, possibly, also another instance. It may be that in such cases the uterine walls have an unusual tenuity, and flexibility is greater than usual in consequence.

In the two cases, 87 and 100, the hardness and nodulation were felt in the vaginal roof when the flexion was at the worst, and appeared to be produced actually by the flexion ; but in these very cases earlier observation revealed simply an excessive pliability only, the patient being at that time, however, very ill with the vomiting.

The clinical aspect of cases of vomiting with anteflexed (or retroflexed) gravid uterus gives reason for the belief that the flexion must have a tangible influence ; because, when the uterus is straightened, and its body elevated, even though the elevation may be slight in degree, benefit follows as regards the vomiting. The microscopical examination of the state of the tissues in cases of chronic metritis at the seat of the bend (Jacobi) revealed presence of sclerosis in a case of [non-gravid] retroflexion. Considering these two features together, it is not too much to assume that the rigidity associated with marked flexion, and which, it may be further said, is intense in proportion to the degree of the flexion, is the actual exciter of the vomiting. At all events, this explanation is compatible with, if, indeed, it be not the only explanation that can be given of, the clinical phenomena observable. This explanation is not a merely theoretical one—it is supported by many facts recorded in the cases above related. There

are two cases particularly illustrative. In the two cases—87 and 100—which I carefully observed at an early period of pregnancy, anteflexion with preternatural softness of the uterus was noted at the time that severe sickness set in. In both cases the recumbent position was the only one in which ease could be obtained. In both these were noted, a little later, localised, defined spots of induration on the anterior surface of the cervix, near the junction of body and cervix; these spots were tender to touch. Pressure upwards through vaginal roof and partial lessening of the anteflexion always afforded relief, both to the pain which was there felt and to the vomiting. In both of these cases the localised induration disappeared under the treatment; concurrently, the uterus was assisted to right itself. In both of the cases there was most positive evidence that the induration was closely related to the anteflexion. Both cases demanded repetition of the elevation treatment from time to time. In both cases the air-ball pessary was employed in elevating the uterus. In these cases the nodular effusions seemed to be produced by aggravation of the anteflexion; and with each recurrence there was noted marked renewal of the severe sickness. They showed that, at all events during early pregnancy, alterations in the position and shape of the uterus are capable of giving rise to changes at the seat of the bend in nature identical with those observed in chronic metritis.

In both of the cases above-mentioned, and to which I desire to direct particular attention, inasmuch as the facts related were observed very carefully, and the cases were continuously under observation, there can be no question that what may be termed

the first stage of severe parenchymatous effusion was present, and, if measures had not been taken such as those which were adopted, would have soon given rise to fixation and incarceration to such an extent as to render reduction very difficult. In some of Horwitz's cases (Nos. 77 to 83) will be found described what may be termed a more fully-developed stage of the condition, with induration and impaction to such an extent as to render elevation of the anteflexed uterus difficult or impossible. Horwitz, commenting on his own cases, considers that the condition present, and which caused the vomiting, was parenchymatous inflammation of the uterus. Here I would refer to the account transcribed from Horwitz's essay at page 44, from which it is evident that in one place this author allows, as fully and completely as it is possible to do, that the displacement was of very great importance in giving occasion to the difficulties observed; while in another he disclaims, in a manner quite unintelligible and contradictory, the idea that the displacement of the uterus was responsible for the effusion, for the impaction, and for the incarceration of the organ. As regards the treatment, his pathological views do not prevent him from placing reduction of such displacement in the first rank of importance.

When the pregnancy-sickness is slight in degree, the condition of the cervix is probably one of comparative softness. The softness allows of increase of flexion when the patient is upright or making any effort. And there probably arises thus compression of the nerves and consequent occurrence of vomiting. In these cases the absolute cure of the sickness which usually follows maintenance of the horizontal position

is explained by absence of exaggeration of the uterine flexion.

Impaction of the gravid uterus in its flexed shape must be considered due jointly to the flexion and to the associated metritis. Flexion alone may lead to incarceration, and metritis, with aggravation of impaction, may follow.

From the facts collected in reference to the apparent release, or easement of some sort, of the tissues of the cervix uteri, producing relief, we are entitled to assume that the manipulations above-mentioned take off pressure from nerves. In his interesting thesis [1] on Copeman's procedure, Marcou calls attention to the 'cervical ganglion' as a possible factor in the production of the vomiting. Almost all the nerves of the uterus, says Marcou, proceed from this ganglion. What is there to be surprised at that the slightest modification occurring in that region, such as might be inappreciable on careful examination—compression, exaggerated tension of that organ—should be more painfully felt by that part of the uterus than any other? I have only recently, for the first time, seen Marcou's thesis, and become acquainted with his remarks on the cervical ganglion; but they appear to me to be of importance. It is to be noted that the cervical ganglion itself lies rather behind than in the wall of the cervix itself.

[1] *Thèse de Paris*, 1878.

### Occurrence of Impaction of Gravid Uterus in Cases of Severe Vomiting together with Retro-Displacement of the Uterus.

That the retroflexed gravid uterus may become impacted to such a degree that it is found very difficult, or even impossible, to liberate it from the pelvis, is well known. Impaction of the retroverted gravid uterus is a malady well recognised, the treatment for which has been well formulated, and successfully practised. The difficulty is greater or less in different cases. In some cases, where the malady has been undetected, women have died unrelieved: in some, in spite of relief of the impaction, where too late effected; in some the fatal result has been due to destructive sloughing of the bladder, resulting from the severe, long-continued compression, or to other secondary effects of the same. Impaction in *retroflexion* of the gravid uterus is favoured by the shape of the pelvic cavity: the fundus, expanding in its retroflexed shape, gradually fills up the hollow of the sacrum, and thus the continued growth of the organ maintains and increases its backward inclination; the tilting becomes greater, and the os uteri rises up anteriorly, so as to be sometimes found above the top of the pubic symphysis. Other results follow —retention of urine, and certain serious symptoms. Severe sickness occurs in some of these cases of impacted retroversion, but in the larger number of such it is absent.

The degree of impaction of the retroposed gravid uterus varies according to circumstances. As far as the second month the obstacle to elevation of the uterus is, probably, not so much the projection of the sacral promontory as the shape of the uterus, and a high degree of rigidity of the tissues, especially in the cervix uteri. And at this period (end of second or beginning of third month) the uterus is not so much impacted as detained in its backward position. Later on (at the end of third or beginning of fourth month) the uterus is so large that the sacral promontory is a real impediment, and then impaction may be said to be present.

It appears that very severe vomiting is occasionally present when the gravid uterus is retroflexed.

It does not seem that the *degree* of fixation or impaction of the retroposed gravid uterus, and the degree of the vomiting, are directly proportionate. In the cases I have above related, where sickness was severe and uncontrollable so long as the position of the uterus had been unaltered, the degree of fixation and incarceration of the fundus was not so great as in several cases of gravid retroversion, which have been recorded, in which sickness was by no means a special symptom. From this it might, of course, be argued that severe sickness is not caused by retroposition of the gravid uterus, associated with fixation and incarceration of the organ.

It is clear, however, that the manipulative or other alteration of the position and elevation of the fundus of the uterus was followed by a very noteworthy effect, in the relief of the sickness in all the cases, with one exception, where such elevation of

the fundus was attempted, and *could be continuously* maintained. That exceptional case( 46) is a peculiar one (Pugliatti's). It is stated that the uterus was replaced, but the sickness continued. A sound, with cotton, was employed to remove mucus from cervix; cure of sickness followed. A tampon had been also employed, so that the real cause of the cessation of the sickness is uncertain.

To understand this exemption from sickness in the majority of cases of gravid retroversion with incarceration, it is necessary to study the connexion between retroversion, or flexion, with sickness in the non-gravid state. In the non-gravid uterus, retroflexion of the organ is sometimes accompanied by very severe sickness; indeed, I have had cases under my care, the reports of which have been published, in which life was threatened by the severity of the vomiting. But in the majority of cases of retroflexion of the non-gravid uterus there is no such vomiting. Here, then, we have a parallelism between the two classes of cases: retroflexion is liable, but not frequently, to be accompanied by severe sickness in the non-gravid and in the gravid state. Further remarks on this parallelism will be made later on.

The incarceration or detention of the retroflexed gravid uterus in the pelvis is, apparently, due to the flexed shape of the uterus. Formerly it was supposed that the displacement occurred after pregnancy had begun; but Tyler Smith has the merit of having pointed out that the retroversion or flexion generally, though not perhaps invariably, precedes the pregnancy, and the difficulty arises because the displaced or flexed uterus increases in size, while it preserves

its abnormal shape. The abnormal shape it is which apparently leads, therefore, to the incarceration of the uterus in the pelvis. The success which attends replacing of the gravid uterus, in cases of retroflexion, in removing the vomiting sufficiently shows that, although retroflexion does not always cause vomiting, it seems always possible thus to cure vomiting *when* associated with the displacement in question. The case reported by Greslou (Case 45) offers very interesting particulars bearing on this point.

### Impaction of Gravid Uterus in Cases of Severe Vomiting Associated with Ante-position or Displacement of Uterus.

It has been shown that impaction of the uterus in an anteflexed state is observed in a considerable number of cases of severe vomiting of pregnancy. The occurrence of impaction under such circumstances requires to be attentively considered, as it is evidently an important factor in the causation of the vomiting.

In dealing with this subject it will be necessary to consider the *question as to the normal behaviour of the cervix, and the alteration of position of the uterus connected with its expansion during the early months of pregnancy, in cases where such antero-position is present.* Anteversion or flexion present at the time of conception persists a longer or shorter time. When the fundus uteri leaves the pelvis, this anteversion or flexion becomes at first much less, and as the uterus increases in size it is lost. It has been asserted by some distinguished authorities, that the degree of anteflexion increases during the early

months, and that increase of flexion at this period must, consequently, be looked upon as normal.

Thus, Spiegelberg says: 'During the first three months, . . . owing to the inclination of the fundus forwards, and to the slight resistance presented by the anterior abdominal wall, as compared with the resisting substratum opposed to the posterior uterine wall, the anterior is thrust further out than the other, and more sharply flexed on the cervix than before, sometimes even at an acute angle.'

Lusk says: 'In the early months the normal anteflexion of the uterus is increased by the weight of the corpus uteri.'

Galabin regards presence of anteflexion so extremely common in early pregnancy that, coupled with some enlargement of the fundus, he considers it one of the most valuable signs of pregnancy at an early stage. Jaggard adopts the view of Schroeder, which is practically identical with that of Lusk.

The increase in the thickness of the uterine walls might bring about apparent, or even real, increase of the flexion during, say, the first two months, or a little later. During the third month elevation of the uterus out of the pelvis begins, and in the course of a month (or thereabouts) later the body of the uterus is so far above the brim as to be readily felt in that position. The precise time at which the elevation occurs to this extent varies in different cases. It must be evident that persistent and increasing anteflexion *unaccompanied* with normal elevation cannot be considered normal. The shape of the body of the uterus while in the pelvis is that of a flattened spheroid, but the shape it assumes afterwards is ovoidal. The elevation of the body of the uterus, together with its

increase in size, has, under normal circumstances, the effect of unfolding more or less completely the pre-existing flexion.

It has been questioned whether impaction of the anteverted or flexed uterus can occur. Against the idea it is urged that the pubic bones do not project over the cavity of the pelvis, as the sacral promontory does, and that there is, therefore, nothing to produce incarceration, or to hinder the fundus uteri rising up into the abdomen as it grows and expands during the third and fourth months of gestation. Hence, it has been argued, impaction and incarceration of the anteflexed or anteverted gravid uterus in the pelvis cannot be recognised.

Impaction in association with anteflexion or anteversion was indubitably present in 23 cases of severe vomiting (see page 68). The 23 cases related show that the proper elevation does not always occur: the uterus, growing in size, but retaining its flexed shape, remains in certain cases in the pelvis, and concurrently becomes fixed there more or less firmly either by abnormal firmness of the uterine cervical tissues, or by inflammatory or œdematous effusion in the cellular tissue immediately covering the uterus. Increase of the size of the uterus, increase in fixation, occurrence of impaction, increase in the severity of the vomiting—these characterise the condition present in the severe cases; while the phenomena observed in the less severe cases seem to be similar, only less in degree. Gehrung of St. Louis, in 1882, pointed out the difficulty which the anterior wall of the uterus experiences in its expansion in cases of gravid anteflexed uterus, the fixation of the fundus in its abnormal position against the pubes preventing the

proper expansion of the anterior wall. There are also to be considered the very considerable swelling of the lower segment of the uterus, the impairment of the circulation in the vessels around the uterus, the coagulation of the lymph effused in the cellular tissue around the uterine lower segment—each of which may contribute to the production of impaction. When the impaction persists it causes intense degrees of vomiting. Whatever view may be taken of the cause of the impaction, it appears that it can, in the worst cases, be relieved by mechanical means. The impaction is relieved, and its effects (on the vomiting) removed, by artificially elevating the fundus; and this is a procedure which, necessarily, more or less alters the shape of the uterus and lessens the degree of the anteflexion present.

### Connexion between Anteflexion and Impaction in the Gravid State.

Many authorities at the present day hold the view that anteflexion, *per se*, is not to be accounted a disease. The statistics offered by Herman and Vedeler show that even marked degrees of anteflexion are observed rather frequently in non-pregnant women, and unattended, as they affirm, by marked symptoms.

In denying the importance of flexions Herman adds the important qualification when the uterus 'is free to move.' This is a qualification which would meet my view of the case to a considerable extent. In regard to the influence of flexion in *causing* fixation, or in rendering the uterus less mobile, there would probably be a greater differ-

ence of opinion between us. In cases of pregnancy where the uterus is anteflexed, and where impaction occurs, the question arises, How far is the anteflexion responsible for the impaction? There are many cases in which anteflexion is not followed by impaction, and impaction is not a necessary sequence. The clinical facts elicited by the recital of the cases quoted (see p. 68) lead to the conclusion that in these cases of impaction and anteflexion the flexion was all-important. And this view receives a large degree of confirmation from the result of directly treating the flexion element in such cases by mechanical elevation of the body of the uterus (see p. 77).

## The Vomiting of Pregnancy a Reflex Act.

The vomiting of pregnancy is generally assumed to be a reflex act. This implies consensuous action of three elements:—

1. The irritating agent, which is local. 2. The nerve-centre—the irritation-receiving organ—which is central. 3. The muscular contractions constituting the act of vomiting.

It is rational to suppose that, as regards Nos. 1 and 2, there may be variations from the normal condition, which may affect one or the other exclusively. Thus, we may suppose that in one case the element No. 1 is principally at fault, while in another the element No. 2 is chiefly responsible; or, in other words, supposing the irritation (excentric) in two given cases to be equal, the vomiting occurs in one case because the central system is unduly excitable, while it fails to do so in the other case on account of the central system being in a normal, not easily excitable, condition. The opposite kind of combination is, obviously, also possible. The greatest degree of vomiting would, of course, be expected to occur in those cases in which the elements 1 and 2 are both in an exaggerated *plus* state; and there is not only *greater excentric irritation*, but an *increased central excitability*.

There is a class of cases in which the sickness is, perhaps, chiefly due to a general feebleness or weaken-

ing process, one result of which is a too ready excitability of the nervous system. Under these circumstances there exists a predisposition to vomiting, the vomiting-centre[1] being too impressionable, and the consecutive links in the chain of events being—(1) anæmia of organs generally (including nerve-centres) from deficient nutrition; (2) pregnancy; (3) slight uterine irritation; (4) reflex vomiting.

The reflex theory of pregnancy-vomiting almost necessarily assumes that the uterus, or some part of it, is the starting-point, the element No. 1 being the locality of the excentric irritation. The reflex theory of the severe vomiting of pregnancy assumes, also, that there is no essential difference between the ordinary vomiting of pregnancy and the severe, or so-called uncontrollable, form of the affection.

Most of those who look upon the uterus as playing the part of the irritating agent, connect the irritation with the expansion this organ undergoes during pregnancy, and the consequent action upon the uterine nerves. Some—as Dr. Barnes—attribute the irritation to undue tension of the muscular structure of the uterus; others consider that it is due to direct pressure upon the nerves, produced by compression acting, either generally or particularly, at certain situations. It appears to me that the probabilities are very strongly in favour of the idea that the nerves in the neighbourhood of the internal os uteri are the nerves which are primarily irritated, and that this is brought about by tissue-compression occurring at that situation in the way previously described, or,

[1] There are good reasons, as has been pointed out by Dr. Oliver (*Trans.* Roy. Soc. of Edin., 1889), for the conclusion that a vomiting-centre exists, though not yet sufficiently localised.

possibly, by direct compression by the indurated tissues of the cervix on the cervical ganglion, as mentioned at p. 104. That compression is present in a great number of instances is evident on looking over the cases, in which we find note of induration, thickening, incarceration, undue flexion, &c., at or near this region of the uterus. That remedies, whether local sedatives, *e.g.* cocaine or solution of nitrate of silver; or mechanical treatment so acting as to liberate from compression the tissues at this situation, are very frequently effectual, can only be explained by supposing that the irritated nerves are quieted by the drug, or that the irritation is made to cease by the removal of pressure.

It is important here, again, to note that compression may be present in the cervical tissues without simultaneous displacement or incarceration, or even flexion, as in one very severe case (No. 71, p. 38), in which the patient had been so far cured of a chronic anteflexion that pregnancy occurred, but the cervix was thick and rigid, and remained so.

## Other Symptoms indicative of Uterine Irritation in Cases of Severe Vomiting of Pregnancy.

There are few cases of severe vomiting in which other symptoms of a very important character are absent—symptoms which indicate an abnormal condition of the uterus, or of organs in close contiguity to the cervix. One of these is *pain*—pain felt low down in the pelvis—often of a severe character, though not always severe, yet generally present. The pain is usually more to one side, and particularly in the region of the foramen ovale. In two recent cases—Nos. 87 and 100—this pain was very marked, and I carefully observed its course and history. It was found to be relieved by raising the fundus, or helping it to rise out of the pelvis, and was plainly due to the condition causing the incarceration. Another symptom is *tenderness to the touch* on vaginal examination. The tenderness is located, as I have observed it, on the side where the pain happens to be. It is also indicative of incarceration of the uterus, or of a condition approaching incarceration; and it may be found associated with an œdematous feel in the vaginal roof, usually more or less to one side. Another symptom often associated with the pain and tenderness is a sensation of compression or pressure. One patient had a feeling as if someone were sitting on her. It is due to incarceration, or to a condition

approaching incarceration, and is plainly due to the resistance offered to elevation and expansion of the uterus. This is proved by the effect which gentle upward pressure through the vaginal roof has in relieving the patient.

Another symptom often present in association with severe vomiting is frequency of micturition. In cases of anteversion or flexion there is usually this frequency of micturition.

The foregoing symptoms are more particularly observed in cases of severe vomiting and anterior displacement. In cases of vomiting with retro-displacement, the disturbance of micturition is generally of another kind : the patient experiences a difficulty, and retention of urine, as is well known, is very liable to occur, and, indeed, constitutes one of the grave incidents of this particular disease.

## Further Illustrative Facts in History of Pregnancy-Vomiting.

Some facts in the history of vomiting in pregnancy have importance in regard to the explanation here given of the occurrence of pregnancy-sickness :—

1. The limitation (as a rule) of the sickness to the first four months of pregnancy, after which there is (as a rule) a marked mitigation. This change is coincident in point of time (as a rule) with the rising up of the body of the uterus out of the pelvis. This cessation of the sickness happens, also, at a time when the uterus loses (or should do so) its flexed condition. The compression of cervical tissues due to flexion and its consequences, is taken off, and, the irritation being removed, the reflex vomiting no longer occurs. In a given case of vomiting with impaction, in accordance with what has been stated, it would be expected that benefit would result from imitating Nature's procedure, and by removing the impaction the patient should obtain relief. The fact that relief is so obtained, as shown by the cases related, is a strong argument in favour of the accuracy of the explanation.

2. Another fact in the history of pregnancy-vomiting is one to which I alluded in my paper of 1871 : [1] that sickness in pregnancy is so frequently observed

[1] *Obst. Trans.*, vol. xiii., p. 114.

when the patient first gets out of bed or shortly afterwards. This occurs so often that it has been termed 'morning sickness.' And I pointed out that it may be reasonably supposed that this morning sickness is due to the upright position producing an exaggeration or increase in the existing flexion of the uterus.

Dr. Barnes,[1] 'accepting to a certain extent' my theory, believes that the morning sickness is more frequently due to 'hunger and weakness.' He considers that 'its constant occurrence in the morning seems to imply that at this time there is a maximum of central nervous irritability.' He further adds, that 'the turgescence of the uterine vessels receives a sudden increment under the hydraulic pressure which takes place on assuming the erect posture.'

It may very well be that the central nervous irritability is greatest in the early morning, when food and nutritional support have been wanting for several hours; and this might, no doubt, have the effect Dr. Barnes supposes; and, further, the increased hydraulic pressure must be capable of exercising some degree of influence, in increasing the uterine distension. The facts I have observed as to the actual effect of the upright position in *preventing* the ascent of the body of the uterus in early pregnancy confirm, however, as it seems to me, the idea I had formed, that the morning sickness is mostly, and mainly, due to temporary aggravation of an existing flexion. There is another factor deserving attention—viz., the removal of the bladder-contents, which usually occurs in the early morning. This would allow more readily of a downward uterine movement and increase of anteflexion.

[1] *Obst. Med. and Surg.*, vol. i., p. 363.

## Summary.

The ideas I have been led to entertain regarding the vomiting of pregnancy were suggested by the parallelism which seemed to exist between cases of uterine sickness in non-pregnant, single, or nulliparous women, and cases of severe vomiting in pregnancy (*see ante*, p. 94). In a paper published in 1871 I expressed the opinion that the sickness of pregnancy in its slighter as well as in its severer forms was connected with the presence of flexion of the uterus. I also pointed out in the paper in question [1] that in some few cases a flexion of the uterus will lead to troublesome sickness if the patient becomes pregnant, but that flexion of the uterus will not always give rise to troublesome sickness when pregnancy occurs; also, that anteflexion of the gravid uterus is more commonly met with than was supposed (at that time—1871). In this paper (1871) the vomiting of pregnancy was explained as being due to presence of associated flexion of the uterus; the ground for this conclusion being the similarity between cases of uterine vomiting due to uterine flexions, and vomiting as observed in cases of pregnancy.

In 1884 I submitted a paper to the Obstetrical Society of London on 'The Severe or so-called Uncontrollable Vomiting of Pregnancy,' [2] reporting a con-

[1] *Obst. Trans.*, vol. xiii., p. 108.
[2] *Ibid.* vol. xxvi., p. 273.

siderable number of cases (32) illustrative of the history and nature of this affection. The two factors which were insisted on as important were :—1. Incarceration of the uterus in the pelvis associated with flexion or version. 2. Undue hardness and rigidity of cervix and tissues round the os internum. The facts showed that embarrassment in the expansion of the uterus existed from the beginning of pregnancy.

In the discussion on the paper which took place the important point—then for the first time brought forward, and supported by facts—that in a large number of these severe cases of vomiting the uterus is found *both displaced and incarcerated*, this point was only alluded to by one of the speakers (Dr. Galabin), who, however, appeared to think that in cases of anteflexion incarceration was impossible, although he fully admitted the existence of incarceration in cases of retroflexion. Yet it was stated in the paper that, in 12 out of 23 cases of decided anteversion or flexion, there was found present impaction of the anteflexed or anteverted uterus in the pelvis.

In 1888 a further collection of cases was embodied in a paper (on 'The Severe Vomiting of Pregnancy') read before the American Gynæcological Society, at Washington, U.S., and printed in vol. xiii. of the *Transactions* of the Society. Additional cases were brought forward to show that impaction or incarceration of the gravid uterus, together with ante- or retro-displacement, was present in a large number of cases. Another factor—rigidity of the cervix—was present in several cases, with or without displacement. In this paper the point as to the frequency of impaction or incarceration of the gravid uterus, constituting an impediment to normal uterine expansion

was again insisted on, and tabular statements given to show the great frequency and importance of the occurrence in anteflexion cases, as well as in cases of backward displacement, but notably in the cases where anteflexion was present.

As long ago as 1877 Spiegelberg expressed a very strong opinion as to the influence of flexion, with impaction of the uterus in the pelvis, in the production of the severe vomiting of pregnancy. I give the following quotation from his well-known work:—

'Now and then some serious disease of the stomach (simple ulcers, or infiltrations of gastric walls) gives rise to the vomiting; but, as a rule, the causes are obscure. . . . Where such a cause can be excluded, we must seek for an explanation in the well-known sympathy between the genital organs and the stomach in perverted innervation; and with reference to this point it is important to note that *in quite a large number of cases some source of irritation has been found in the uterus*, e.g. *flexion, with impaction in the pelvis; or some hindrance to its rising up out of the latter; or an inflammatory swelling at a circumscribed portion of the body, and especially of the cervix*, with or without ulceration. Nevertheless, there are numerous cases in which no objective change can be detected.'[1] [The italics are mine.—G. H.]

Spiegelberg thus connects the flexion with the vomiting through the associated impaction. In my first paper, published previously (1871), it was stated that the flexion caused the sickness, in consequence of the compression of the nerve-ramifications at the seat of the flexion;[2] and I also pointed out the

[1] 'Text-book of Midwifery,' *Syd. Soc. Trans.*, vol. i., p. 342.

[2] *Obst. Trans.*, vol. xiii., p. 113.

beneficial effects of the horizontal posture, 'in allowing the expanding uterus a better chance of escaping from the pelvis.' These quotations exhibit tolerably complete identity between Spiegelberg's views and those advanced by myself in 1871.

The opinions of Guéniot, one of the most recent, and one of the oldest writers on the subject, are in the main in accordance with those above expressed. Guéniot regards the 'simple' and the 'obstinate' forms of pregnancy-vomiting as differing from each other only in point of degree. In his Thesis of 1863 he expressed this opinion. He has recently re-stated it in an Essay [1] published in 1889. He considers the primordial cause of the obstinate form of vomiting is pregnancy. Other influences rendering the vomiting obstinate are derived most commonly from *a morbid or abnormal state of the uterus*, under which are included:—Of *the cervix*—ulceration, tumour, deviation, atresia, &c.; Of the *body of the uterus*—a depression, a flexion, an incarceration, or an exaggerated tension. *In most cases it is the cervix which is the real seat.* These lesions do not always occasion vomiting; but it must be admitted that some—*e.g.* adhesion of ovum—are difficult of diagnosis, and may exist though undetected. Guéniot considers that there are three factors:—(1) the uterus, (2) the nervous system, (3) stomach. The three factors rarely concur equally.

[1] 'Vomissements de la Grossesse,' *Bull. de l'Acad. de Méd.*, Paris, 1889.

## General Deductions.

Vomiting occurring in the pregnant woman may be due to disease of some organ other than the uterus.

Excluding such cases, by far the majority of cases of vomiting observed during pregnancy are dependent upon the pregnancy (vomiting *of* pregnancy).

Vomiting is not a universal symptom or a necessary effect of pregnancy; from which it follows that it is not physiological, in the strict sense of the word. The vomiting of pregnancy may be slight or severe. There is no essential difference, save that of degree, between cases of slight and severe vomiting of pregnancy.

It is reasonable, therefore, to infer that the cause of the slight and of the severe sickness of pregnancy is one and the same, the cause or predisposition differing in intensity in the two cases. A trifling degree of 'irritation,' if *persistent*, may cause dangerously severe vomiting.

The evidence adducible is very strongly in favour of the view that the 'irritation' which excites the reflex vomiting is seated in the uterus.

The evidence appears to point to the conclusion that the irritation may be further defined to be undue pressure or tension of the nerve-filaments distributed in the walls of the cervix, especially those in the

vicinity of the internal os; possibly to direct pressure on the cervical ganglion in some cases.

Undue pressure or tension may arise in any case where that expansion process in the tissues of the cervix which is natural to pregnancy is delayed or obstructed by the condition of the cervix.

It may be assumed that undue tension around the os internum may also occur when the contents of the uterus exercise an unusual pressure in consequence of their bulk being unusually great. Undue quantity of liquor amnii, considerable thickening and hypertrophy of the endometrium (decidual endometritis), presence of twins, &c., might thus, if in association with slight cervical rigidity, give rise to such tension as to excite unusual and extreme vomiting.

The alterations of the uterus proved by recorded cases to be most frequently present in cases of severe vomiting are :—

*a*. Marked flexion forwards or backwards.

*b*. Rigidity of tissues of the cervix.

*c*. Impaction or detention of the body of the uterus in the pelvis.

These three factors are most frequently associated, in various degrees of severity.

The impaction and the rigidity of tissues appear from the facts recorded to be connected with the flexion. The flexion by itself appears to be incapable of producing severe vomiting unless the tissues are excessively lax and soft. Impaction appears to be almost incapable of occurring unless there be flexion, and it seems certain that it is only when the flexion is marked that the impaction becomes considerable.

It seems to have been taken for granted that cases of impaction with *retro*flexion may be allowed to be

explained by the presence of the displacement. The cure by replacement in these cases has also been admitted. As regards the *ante*flexion cases it is different, and it is concerning the explanation of these cases that the evidence adducible requires careful study before the explanation is rejected.

The *existence of impaction* in the cases of severe vomiting in *cases of anteflexion* is proved to be very common, which is a circumstance entirely separating such cases from cases of ordinary anteflexion of the gravid uterus. Admitting that it is normal for the uterus to be anteflexed, it is abnormal for it to be impacted, and to such an extent in some cases that it for the time resists elevation so much as to have led to use of the term 'irreducible.' This point refers to a matter of fact, and the reader is referred to the cases for proof of the assertion.

The relief of the sickness on elevating the impacted, anteflexed uterus is evidence that the anteflexion plays an important part in the causation of the sickness *when such impaction is present.*

The effect, also salutary, of dilating the os (Copeman's method), and which is probably in many cases due to incidental rectification of uterine flexion or displacement.

The condensation of cervical tissues met with in cases of severe vomiting of pregnancy is often due to metritis of a previously-flexed cervix. This renders the flexion more fixed; hence greater difficulty of expansion. Sclerosis of the tissues is present; hence greater effects from pressure on nerves. This resistance of the uterine walls to the process of exhaustion may possibly occasion the decidual thickening and hypertrophy (decidual endometritis of Veit.

Jaggard, and others) now and then observed; a resistance liable to interfere with normal intra-uterine growth.

The cervical tissues are not condensed—perceptibly so, at all events—in all cases; in these few exceptional cases the flexion is exaggerated on every exertion, in consequence of the undue softness of the tissues, and sickness accompanies such exertion.

The ordinary slight cases of sickness of pregnancy are explainable by the presence of slight degrees of flexion—generally anteflexion—without necessarily any appreciable condensation of tissue.

The cases in which sickness appears late in the pregnancy are explainable by supposing that there are in such cases sclerotic areas in the vicinity of the os internum which are not much influenced by the growth in the size of the uterus until late on in the pregnancy. It may be that sickness observed in the latter months depends on over-distension of uterus, giving rise to tension of nervous filaments in the walls of the uterus.

The nervous and the physical elements are diversely predominant in different cases. Thus, a feeble, weakly state of nutrition of the nerve-centres renders a slight uterine irritation potent in production of vomiting. To go to the other extreme, a severe, confirmed uterine flexion, with condensation of cervical tissues, may excite marked vomiting, although the nerve-centres are not specially weak or over-irritable. Between the two extremes, then, are all imaginable gradations. In cases where the nervous (central) and the local (uterine) elements are both at fault the difficulties may be expected to be greatest.

The probable order of events prior to pregnancy

in the majority of cases of severe pregnancy-vomiting may be thus stated :—

1. Weakness (from inadequate nutrition) of the uterine tissues.

2. Occurrence of undue degrees of flexion.

3. Metritis, and subsequent rigidity of cervix; and, after pregnancy has set in :

4. Increase of degree of flexion and displacement.

5. Increase of swelling and tension of tissues of the cervix.

6. Gradually-increasing vomiting.

7. Impaction or incarceration.

In the exceptional cases where the uterus is too soft at the beginning of pregnancy, rigidity is at first, at all events, not present.

## Treatment of the Slight and of the Severe Vomiting of Pregnancy.

Each case must be dealt with on its merits. It is a matter obviously of first-rate importance to determine the cause of the sickness in a given case. Practically, it is necessary to determine as nearly as may be whether the cause is a disease, or abnormality of the uterus or of some other organ of the body. It may be found very difficult to absolutely exclude the latter, but it would be comparatively easy in most cases to detect the existence of the former (the uterine disturbance) when present in a given case.

The *general* treatment of cases of severe vomiting in pregnancy—which is all-important from a preventive point of view—is a matter requiring attention in all cases. The vomiting being regarded as a reflex act, the principle of treatment is, obviously, to break the chain of the reflex action by lessening or removing the irritation (whatever that may be), or by lessening the sensitiveness of the nerve-centres. Good food, nerve-tonics, fresh air, and general hygienic measures, may be expected to be of service in the latter particular, and, where the irritation is not severe in degree, might prove sufficient to give relief. In all cases where feebleness is present these 'general' remedies are particularly indicated, and unless the sickness is, so to speak, established, may render

unnecessary special local treatment. A fair amount of rest, and observance of the horizontal position in varying degrees of strictness, would be required, however, in all cases.

*Cases of Slight Vomiting of Pregnancy.*—When the patient is in her first pregnancy, and the general health preceding pregnancy has been good, no particular menstrual difficulties having been present, the best plan to pursue at first would be to give gentle aperients, or daily enemata, whereby any straining at stool would be prevented; to give food frequently, but in small quantities; to order the patient to take breakfast in bed, and to avoid any severe exercise. It is hardly necessary to add that any abdominal pressure, by corset or otherwise, should be avoided. As regards air and exercise, they are important; but the latter should be taken in moderation. The sitting position is not favourable; stooping, lifting, carrying, and such-like efforts, are to be avoided. The object is to prevent the exaggeration or increase of the vomiting.

In cases where there have been local uterine symptoms previous to pregnancy, or where there has been general weakness, or where there has been a previous pregnancy, it would be advisable in cases of persistent slight sickness to ascertain the state of the uterus by means of a digital examination. If there be present a marked degree of flexion of the uterus, it is highly important to become aware of that circumstance at an early period; and if there be a decided flexion of the uterus, to ascertain its nature and variety, inasmuch as the treatment called for by a retroflexion is quite different to that required in a case of acute anteflexion. It is important, also, to

have early knowledge of the presence of this kind of complication, because comparatively simple measures in the way of treatment are at that time very effective.

The examination required is to be made by the finger (previous careful use of nail-brush being essential), after the ostium vaginæ has been carefully cleansed. The bladder should be empty. The patient lies on the side, close to the edge of the couch, with the knees well drawn up. This mode of examination allows, according to my experience, a deeper exploration of the pelvic interior from below than any other. It is generally very easy to determine if the body of the uterus be inclined backwards or forwards. If the os uteri is *far back*, and not quite so easy to reach as usual, the uterus is generally anteverted or flexed. If the os uteri is felt to be behind the symphysis, and too near to it, the uterus is generally retroverted or flexed. The diagnosis is confirmed by determining the presence of the fundus uteri to the front or to the back, as the case may be. When there is retroversion or flexion, the finger carried far behind the cervix generally encounters what seems to be a rounded tumour having the shape of the fundus uteri. Correspondingly, if there be anteversion or flexion, there is to be felt an enlargement pressing down the vaginal roof anteriorly to the cervix. In some cases this anterior tumour is felt by the finger as a resistance simply, its outline not being so well defined. If there is no resistance behind the cervix, the idea of the presence of retroflexion may be excluded, and it may be assumed that the uterus is more or less anteflexed. A certain degree of anteflexion is natural to the uterus. Anteflexion becomes certainly abnormal

when the enlarged fundus is felt low down behind the symphysis, and resists attempts made to push it upwards; the case is then one of incarceration or impaction of the anteflexed uterus. There may be found present a certain degree of fixation, imparted to the anteflexed cervix by previous inflammatory action; and it may then be felt hard, large, and resisting, more or less, attempts to straighten it.

Anteflexion may be associated with a soft cervix. If the softness be too great, the existing anteflexion is more liable to temporary increase on standing or exertion. Mobility of an anteflexed uterus is, as a rule, favourable, because the uterus expands and grows more freely; but in a few cases the mobility is excessive, and it is difficult for the fundus to rise up out of the pelvis. The digital examination enables us to determine the degree of descent of the fundus and the degree of anteflexion; also the size, and the softness or hardness, of the cervix.

### Treatment of Cases of Severe Vomiting Associated with Retroflexion or Retroversion.

In cases of this kind it is well to use the catheter, and remove the contents of the bladder, before instituting any mechanical treatment. The bladder may be found distended with urine. Retention of urine is not, however, always present in cases of retroverted or flexed gravid uterus, especially at an early period. When retention exists, its relief is a necessary preliminary in the treatment.

The replacement of the uterus should be effected as soon as possible. The resistance to replacement differs in different cases. It is better to effect re-

placement gradually if there be much resistance, otherwise abortion may be unintentionally produced. The patient should be kept recumbent for a few days, using the genu-pectoral position, for three or four minutes at a time, every hour during the day. Aiding this, pressure may be made by the finger on the fundus upwards. A pessary is generally requisite

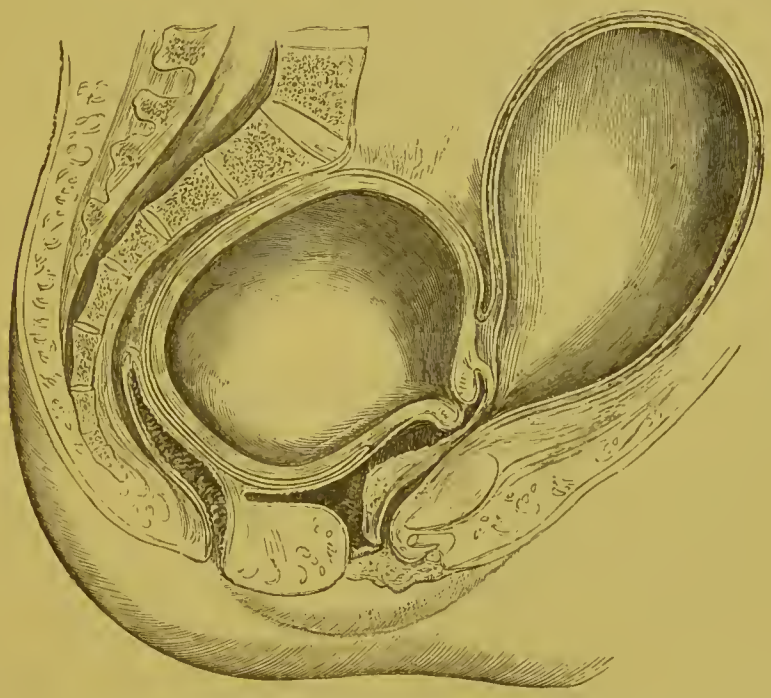

Fig. 1.—Represents diagrammatically the Gravid Uterus in a condition of Retroflexion at about Four Months of Pregnancy.

in these cases of retroflexion, but not always, for careful 'positional' treatment will do much. As a rule, there is a certain degree of resistance to replacement, the displacement having generally been present for some time previous to the pregnancy. And there is generally a tendency to recurrence, so that, on pushing the fundus upwards, it often falls back on withdrawing the finger. Sometimes it is a

good plan to introduce a pessary at once. The simple watch-spring ring, covered with indiarubber, and of a size ($2\frac{1}{2}$ inches outside diameter) not to give too much pressure, may be first used; and followed by a larger one, or a thickly-covered (Albert Smith) Hodge pessary, such as shown in fig. 2. Together with use of a pessary, the patient should have com-

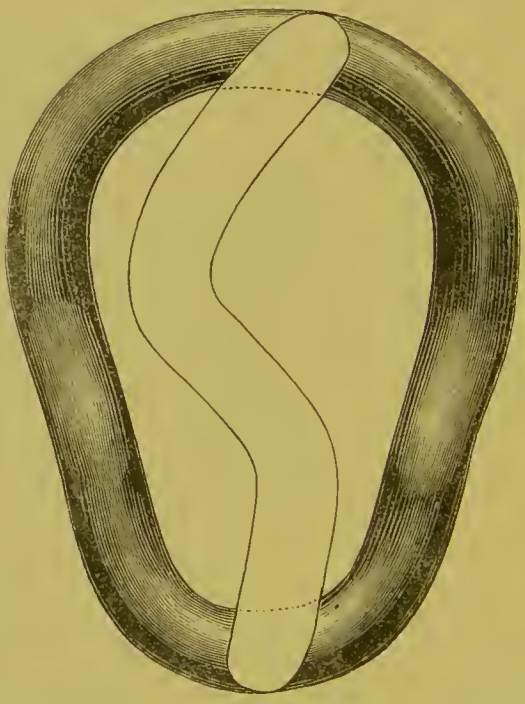

Fig. 2.—Represents a medium-size Pessary of the (Albert Smith) Hodge shape, suitable for a case where the Patient is not a Primipara.

plete rest until the uterus has risen into its place. She should lie on the side, and occasionally use the knee and elbow position.

In cases where the resistance is greater, the reposition should not be attempted until the patient has been kept in bed for two or three days, and after use of genu-pectoral position, &c. The patient being then placed in the genu-pectoral position, pressure is

made by the fingers on the fundus, behind the cervix. For this purpose the two fingers may be inserted in the vagina, or pressure may be made from the rectum. This operation may be effected at once; or it may be done in stages, so as to incur less risk of producing abortion.

When reduction is effected, rest in the recumbent side position is advisable for three or four weeks, as a rule, and a pessary is generally necessary during this period. The pessary may require to be changed occasionally. If it be too small, or too narrow at the upper end, the fundus uteri may slip to one side, and its object is defeated. In Case No. 31 this difficulty occurred.

The pessary may be removed after four months of the pregnancy has expired, by which time the fundus is usually too large to fall back into the sacral concavity.

### Treatment of Vomiting of Pregnancy when Uterus is Anteflexed or Anteverted.

For practical purposes we may divide cases into three classes—*a*, *b*, and *c*:—

*a*. Cases where vomiting is troublesome, interferes with comfort, and only occurs on standing or exertion, or on rising in the morning. Patients so affected should use a sofa instead of a chair, avoid long walks or exertion—straining, lifting, &c. There should be daily, easy action of the bowels. Food in small quantities at a time, but often. There is generally a feeble condition, from malnutrition, and the patient requires albuminous foods, easily digestible, but in good quantity. These precautionary measures are

likely to be needed up to the end of the fourth or up to the end of the fifth month, after which time the liability to vomiting mostly ceases.

*b.* The intermediary cases of pregnancy-vomiting with anteflexion are those in which the vomiting becomes severe, but is more or less quickly arrested by absolute quiescence in the horizontal position for a period varying from two to four weeks. In these cases there is a tendency to impaction; but by maintenance of horizontal position and rest, the impaction may be prevented: each day the fundus rises a little, and after a few days the crisis may be passed. In these cases the patient should lie on the back, the pelvis being occasionally a little raised by a pillow. The genu-pectoral position is also of service, and will aid our object, which is to assist the fundus in rising up out of the pelvis. Occasional pressure of the vaginal roof upwards by means of the finger will materially assist in the elevation of the fundus. In this class of cases the patient may have to be kept on the couch a month or six weeks. The question of applying an artificial support—a pessary—will, of course, arise if the above treatment fails, or, if the treatment having succeeded in relieving the vomiting, the patient is tired of the continuous lying down. As regards nourishment, this is a matter of great importance. At first it will be best to give enemata of a nourishing character for two or three days. Small quantities of soup, beef-tea, or milk may simultaneously be given by the mouth, if they can be retained.

*c.* The particular cases next to be considered are those in which, spite of rest in bed, avoidance of feeding by the mouth, and treatment by medicines,

the vomiting is incessant, or only intermittent for short periods; while it is increasingly severe, each day showing more prostration and tendency to a fatal issue.

In these cases the treatment required is essentially a mechanical one. In the first place,

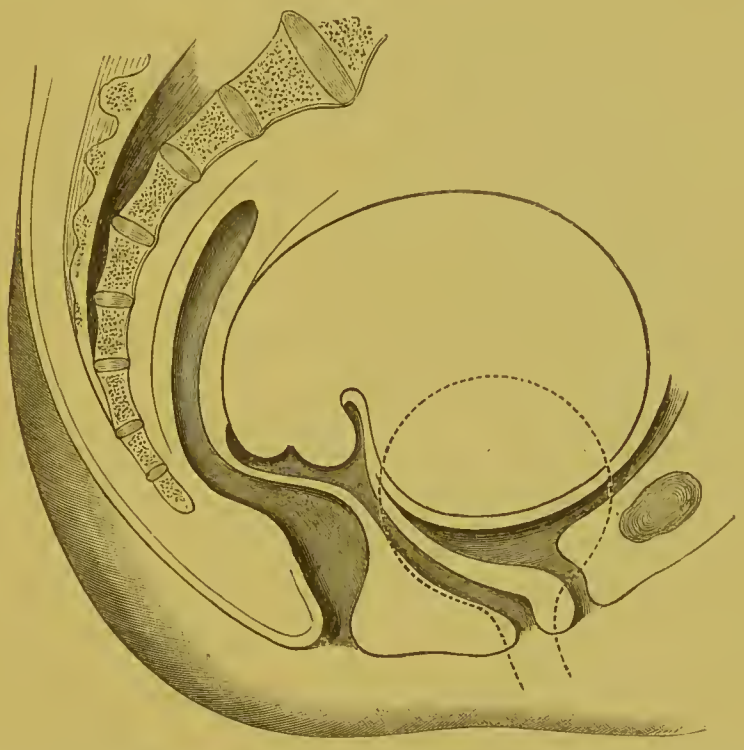

Fig. 3.—Represents in a diagrammatic manner a supposed Section of pelvis with an Anteflexed Impacted Gravid Uterus at about three and a half Months. Dotted outline indicates air-ball pessary's position. See next figure.

pressure must be continuously applied, for a few minutes at a time, to the vaginal roof. The best instrument to use is the finger, by means of which a gentle, firm pressure can be readily employed, so as to gradually elevate the base of the bladder and the fundus uteri which is lying upon it. If the finger be

used, care should be taken to employ the nail-brush previously; and carbolised oil or other antiseptic should also be employed. If there is such resistance that no elevation can be thus effected, a vaginal air-ball pessary is a highly efficient means of overcoming this resistance. The Gariel air-ball pessary, as

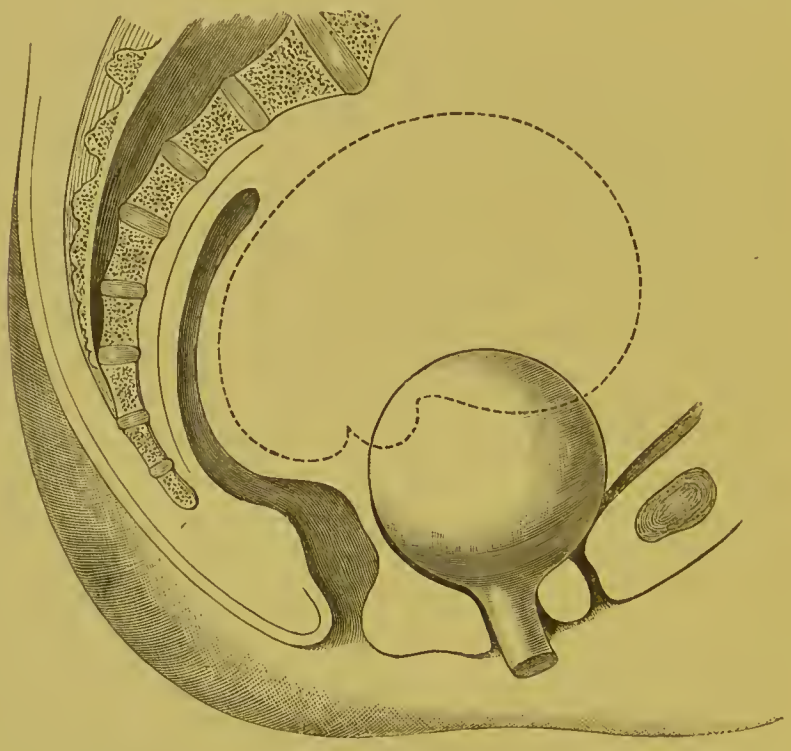

Fig. 4.—Represents alteration supposed to be effected in position of uterus in foregoing figure by the action of the air-ball pessary. The alteration is represented by the dotted outline.

so used, should be absolutely spherical in shape. The size required is $1\frac{3}{4}$ inches in diameter when not distended. After insertion it should be rapidly filled, so that it has a diameter of from $1\frac{6}{8}$ to $2\frac{2}{8}$ inches, or not exceeding $2\frac{1}{4}$ inches. Minute attention to regulation of the inflation is necessary. The pessary should be inserted quite empty. The brass syringe for filling

it will then require six to eight strokes of the piston to dilate the pessary to about 2 inches in diameter; the stop cock should be rapidly turned the moment after the last piston-stroke, and care should be taken beforehand to see that it is airtight. Before introduction the vagina should be irrigated with warm water, containing either carbolic acid or sublimate. The pessary should be dipped in sublimate solution before insertion. After inserting and fixing the pessary the patient must be kept on the back for from six to twelve hours. The pessary should then be removed, the air being allowed to escape first. A vaginal antiseptic douche is next to be used; and the pessary, after being thoroughly cleansed, may be re-introduced; or it may be thought best to wait twenty-four hours before using it again. This instrument I have several times used in the treatment of anteflexion with a heavy fundus in non-pregnant cases, and I have also employed it as above-directed in pregnancy with the most satisfactory results. It is exceedingly important that the air-ball should be quite round. It is also very necessary to be careful not to over-distend it, otherwise there is a danger of inducing abortion.

An admirable plan in a difficult case is to exercise pressure by the finger first for a few minutes, and then to insert the pessary. This may be repeated two or three days in succession.

The figures 3 and 4 are intended to represent diagrammatically the position and action of the air-ball pessary when the gravid uterus is anteflexed and the fundus low down behind the symphysis pubis. In fig. 3 the size of the uterus shown is that of about three and a half months of pregnancy. The position which the air-ball is to take is represented by a dotted

line, and it indicates the effect which may be expected from the pessary in raising the globe of the uterus from its low position.

In figure 4 a diagrammatic representation is given of the alteration of the uterine position supposed to be effected by the air-ball pessary. Here the pessary occupies such a position that the globe of the uterus is necessarily pushed upwards, and the uterus so elevated is shown in dotted outline. The advantageous action of the pessary is manifestly connected with its size, for if too large it would be liable to carry the uterus as a whole upwards, whereas what is required is an upward pressure operating chiefly on the fundus uteri. Experience has shown that the pessary acts best when distended to about two inches in diameter.

In cases where the whole uterus is very soft, the air-pessary is required, and sometimes has to be worn, a part of each day for a week or two; for the moment it is withdrawn the fundus falls and the sickness recurs. In most cases where a pessary is required to be worn for a longer time, I prefer an indiarubber cradle-pessary, such as are made for me by Mr. Russell, of 57 George Street, Portman Square. The cradle-pessary is not, however, so easily managed by those unaccustomed to its use as the Gariel air-pessary.

In several cases I could mention, pregnancy has begun while the patient was under treatment for anteflexion, and in such cases the pessary has been allowed to remain up to the fourth month with great advantage.

The effects of alteration of the position of the uterus, and partial straightening of the uterus which follow the above treatment by mechanical elevation of the body of the uterus, are usually so decisive and

so immediate in regard to the vomiting as to leave no doubt of their efficiency. The decisiveness as well as the rapidity of the change in the condition of the patient are often most striking. If relief is thus found to be obtained, it is obviously only necessary to persevere in treatment on those lines.

Vaginal tampons have been successfully employed.

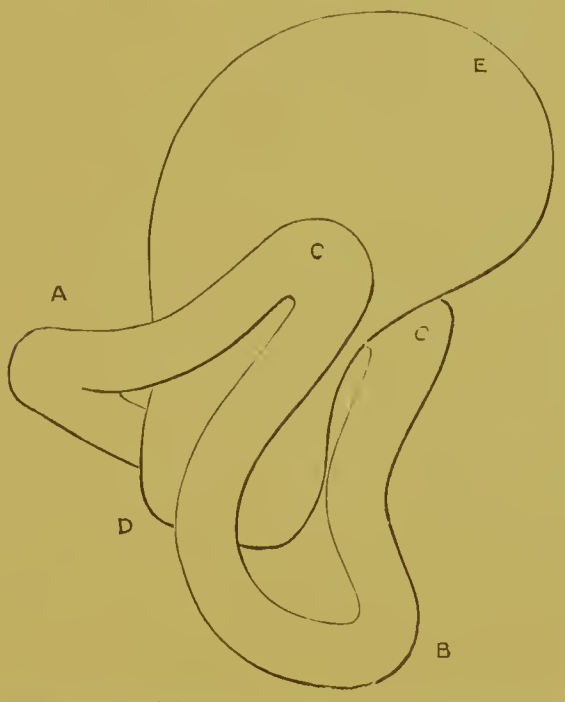


Fig. 5.—Represents Position and Action of Cradle-Pessary. Outline represents uterus in non-pregnant state. The size of pessary here shown would be appropriate in the third month of pregnancy.

The action of the vaginal tampon if the tampon is *globular* in shape is like that of the air-ball pessary. Tampons were used in Cases 77, 88, 97, and 99, apparently with great advantage. In Case 97 the tampon seems to have been not so suitable. It is possible that it was too large. The air-ball pessary is superior to any other form of tampon for ease and

facility of adjustment, as well as for certainty of bringing about proper elevation of the anteflexed or anteverted fundus.

*Copeman's Dilatation Treatment.*—A comparison of this treatment with the uterine reposition and straightening has been made at p. 83. In the majority of cases, it is my belief that uterine adjustment is superior to dilatation in regard to its power of arresting the sickness.

Copeman's 'dilatation' has certain disadvantages. One is, that in the worst cases the os uteri is so small that the finger is useless for dilatation purposes until opened up by bougies; another is, that in some instances it has been found unavailing unless the whole cervical canal is dilated; another is the liability—as proved by recorded cases—to induction thereby of abortion. Lastly, it is to be stated that records of cases favour the view that the readjustment and release of the impacted or incarcerated uterus seems at least as efficacious in curing the vomiting, while it is more simple, and less objectionable in regard to possible induction of abortion. There are, probably, exceptional cases, where the adjustment of uterine position fails to arrest vomiting (such as Case 71). The dilatation plan should be then tried, as thereby the contracted sclerotic condition of the cervical tissues, then presumably existing, will be likely to be more fully and completely removed.

As regards the method of dilating the os and cervix uteri, when the os is small, bougies may be first employed, and the size gradually increased, as is conveniently carried out by Hegar's dilators in non-pregnancy cases; or a two-bladed metallic dilator on the glove-stretcher principle may be first employed.

As soon as the os admits the finger, the latter is probably better and safer to employ than a bougie. The resistance to dilatation is sometimes very great. A sponge-dilator may be employed, but there is a greater liability to sepsis by use of sponge tents than by use of bougies or dilators of other kinds. If sponge tents are used they should be carefully antisepticised. Dr. Aust Lawrence strongly recommends sponge tents in making of which sublimate is employed.[1] The finger, with carefully-devised antiseptic precautions, is preferable in most cases when the state of the os admits it. As regards dilatation, it is better to dilate slowly rather than rapidly. Meredith's case (No. 96) offers facts of an instructive character in reference to dilatation.

*Employment of Medicinal Agents.*—A multitude of drugs have been employed and recommended as having special curative effects in relieving the severe vomiting of pregnancy. Respecting most of them, they have been found quite useless in really severe cases. One reason for the seeming success of a particular remedy in one case, and its complete failure in another, is probably that, when producing an apparently good result, it was a mere coincidence, the real benefit having arisen from a sudden change in the condition of the uterus. (See p. 87.)

*Local medication* is of undoubted efficacy in some cases. Sedatives have, thus locally applied, a distinctly good effect, either used by themselves or in addition to other measures. Vaginal tampons saturated in poppy decoction may be strongly recommended. Cocaine locally applied to the os or to interior of cervical canal has appeared useful in some

[1] See *Obstet. Trans.*, vol. xxxi.

cases. So, again, caustic applications to the os or to interior of cervix uteri (p. 93) have been strongly recommended (Giordano, Marion Sims, and others). Opium, and a variety of other sedatives, might be expected to be serviceable if so applied by tampons as to readily reach the irritated nerves in the uterine cervix. So, again, hot water (105° to 110°) douches would probably be valuable in the same way, but, if repeated too often, might bring on abortion. Rectal suppositories containing opium, morphine, belladonna, or hyoscyamus might be employed with the same view.

It has been suggested by Guéniot that hot water might be applied to the central three fifths of the spine with a view of acting on the nerve-centres more directly, and the suggestion seems valuable. Chapman's ice-bags, which I have employed with benefit in uterine disease associated with central nervous irritability, offer a ready means of carrying out Guéniot's suggestion.

The internal remedies which are most likely to be serviceable are the sedatives which have been mentioned as suitable to be used locally. The bromides of sodium or ammonium or potassium may also prove of some assistance, though we cannot expect much from such remedies in a really severe case.

A part of the general medical treatment which is of great importance is the administration of food in such a manner as to prevent vomiting. In some instances the stomach will retain food if given in very minute quantities and frequently. In some cases starvation may be prevented, for a time at least, by systematic use of suppositories containing nutrient substances of various kinds.

*Induction of Abortion.*—The artificial production of abortion as a remedy for the sickness of pregnancy has now to be considered. In the past this remedy has been frequently employed, and deliberately so, the attempt being thus made, and generally successfully, to save the mother's life at the expense of the infant's. The conclusion which must be arrived at after reading the cases above related is, that the necessity for this sacrifice of the child to the interests of the mother will be found less imperative than it has been hitherto found to be. Unquestionably, with the facts above quoted before him, it will be the duty of the practitioner to give full time and opportunity for trial of those comparatively simple measures which have been found successful in a large number of really severe cases, before deciding on the operation of artificial induction of abortion.

The decision in a particular case as to the *necessity* for this procedure may be very difficult. In favour of delay is the experience that, even in the worst cases, the patient may suddenly take a turn for the better, and may promptly pass from a dangerous to a comparatively favourable condition. The hope that this favourable change may occur would or might, however, induce waiting to an unsafe extent. Flaischlen gives the following symptoms as indications for induction of abortion :—Inability of patient to take food by mouth ; diminution in quantity of urine ; more or less albuminuria ; progressive emaciation ; fuliginous condition of tongue ; severe headache ; frequent and small pulse ; presence of a certain apathy of the patient. In the debate following Flaischlen's paper (see *ante*, p. 90), Veit, alluding to the great difficulty of the decision, offered two objective indications :

(1) Tenseness of the uterus; (2) Progressive loss of weight of the body. In reply, Jacquet mentioned that in one case he had seen, the patient lost thirty-four pounds in three months and yet completely recovered; also that in eight cases where supposed necessity for abortion existed the patients recovered without it. Olshausen thought excessive tenseness of the uterus frequently existed. Flaischlen in reply to Jacquet considered that cases imperatively calling for induced abortion are rare, and argued that Jacquet's cases were not of the worst class.

If the decision be given in favour of inducing abortion, the question arises as to the best method to be adopted.

Rupture of the membranes, as the first step in the process, has much to recommend it. It is sometimes quite easy to rupture the membranes; but not unfrequently the contracted, narrow state of the cervical canal renders it very difficult. One of the advantages of rupturing the membranes is that by escape of the liquor amnii the bulk of the uterus is at once lessened, and that sensible relief to the vomiting usually follows. Rupture of the membranes may not be successful in inducing uterine contraction until twenty-four or forty-eight hours, or even more, have elapsed. There is, perhaps, liability to delay in adopting this procedure, though delay may not be really disadvantageous, it being my impression that a too rapid evacuation of the uterine contents constitutes a shock to the system which should be avoided. Rapid dilatation of the cervix, followed by immediate removal of the ovum, is certainly not the best method of procedure.

The alternative to puncturing the membranes is

insertion of a flexible bougie into the uterus. The bougie plan is the easiest, and probably the safest, method of inducing abortion; it brings on uterine contraction usually in the course of six to twelve hours. The vagina should be douched with antiseptic fluid, the fingers well cleansed, and a flexible bougie, also sterilised and oiled, inserted 3 or 4 inches, in some cases less, beyond the os externum uteri. It should be retained in position by aid of tapes, front and back, on the principle of a T-bandage. The bougie most convenient to use is No. 6 or No. 8; it should be introduced $2\frac{1}{2}$ inches, or a little more, into the uterus, and allowed to remain six to twelve hours. When no uterine action is set up in twelve hours, it may be reintroduced, using antiseptic precautions, and allowed to remain for about twenty-four hours. There is, of course, a liability to produce partial separation of the placenta; therefore great gentleness should be employed, and an endeavour made to avoid the placental site. The further manipulations necessary in the removal of the ovum from the vagina or uterus must be conducted with strict antiseptic precautions.

It is worthy of note that the vomiting, brought to an end for a time by the evacuation of the uterine contents, has been known to return a few days later, and with disastrous results. This happened in Jaggard's case (No. 101). The presumption is that, under the circumstances, the return of the vomiting means the resumption by the uterus of an abnormal degree of flexion. It would be advisable in case of such recurrence to ascertain if this has happened, and to rectify the position of the uterus if found necessary.

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